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FEDERAL - STATE - PRIVATE

SNOW SURVEY and WATER SUPPLY FORECASTS for OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE

and

OREGON AGRICULTURAL EXPERIMENT STATION

and

STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above in cooperation with other Federal, State and private organizations.

APR. 1, 1960

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

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REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
COLORAGO AND STATE OF UTAH	MONTHLY (JANMAY)		UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA AND STATES OF	MONTHLY (JANMAY)	BOISE. IOAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATEOF MONTANA	MONTHLY (FEBMAY)	BOZEMAN. MONTANA	MONT. AGR. EXP. STATION
WEST-WIDE	OCT. 1. APR. 1. MAY 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ARIZONA	SEMI-MONTHLY(JAN.15 - APR.1)		SALT R. VALLEY WATER USERS ASSOCIATION ARIZ. AGR. EXP. STATION
COLORAGO ANO NEW MEXICO	MONTHLY (FEBMAY)	FORT COLLINS, COLORAGO.	Colo. AGR. EXP. STATION Colo. STATE ENGINEER N. MEX. STATE ENGINEER
NEVACA	MONTHLY (FEBAPR.)		NEVAOA DEPT. OF CONSERVATION ANO NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN MAY)		ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY (FEBMAY)	SPOKANE. WASHINGTON ——	WASH. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER
Copies of these various	reports may be secured	from: Head, Water Suppl Soil Conservation 209 S. W. Fifth A	
	PUBLISHED BY 01	THER AGENCIES	
REPORT	ISSUED	AC	GENCY
BRITISH COLUMBIA	MONTHLY (FEB JUNE)		R RIGHTS BR., DEPT. OF LANDS IAMENT BLOG., VICTORIA. B.C.,
CALIFORNIA		CALIFORNIA DEPT. C	F WATER RESOURCES. SACRAMENT

FEDERAL - STATE - PRIVATE

COOPERATIVE

SNOW SURVEY and WATER SUPPLY FORECASTS for **OREGON**

ISSUED

APRIL 8, 1960

Report prepared by

W. T. FROST, Snow Survey Supervisor

and

BOB L. WHALEY, Assistant Snow Survey Supervisor

SOIL CONSERVATION SERVICE 209 S.W. 5TH AVE., PORTLAND 4. OREGON

Issued by

THOMAS P. HELSETH STATE CONSERVATIONIST SOIL CONSERVATION SERVICE

F. EARL PRICE DIRECTOR OREGON AGRICULTURAL EXPERIMENT STATION

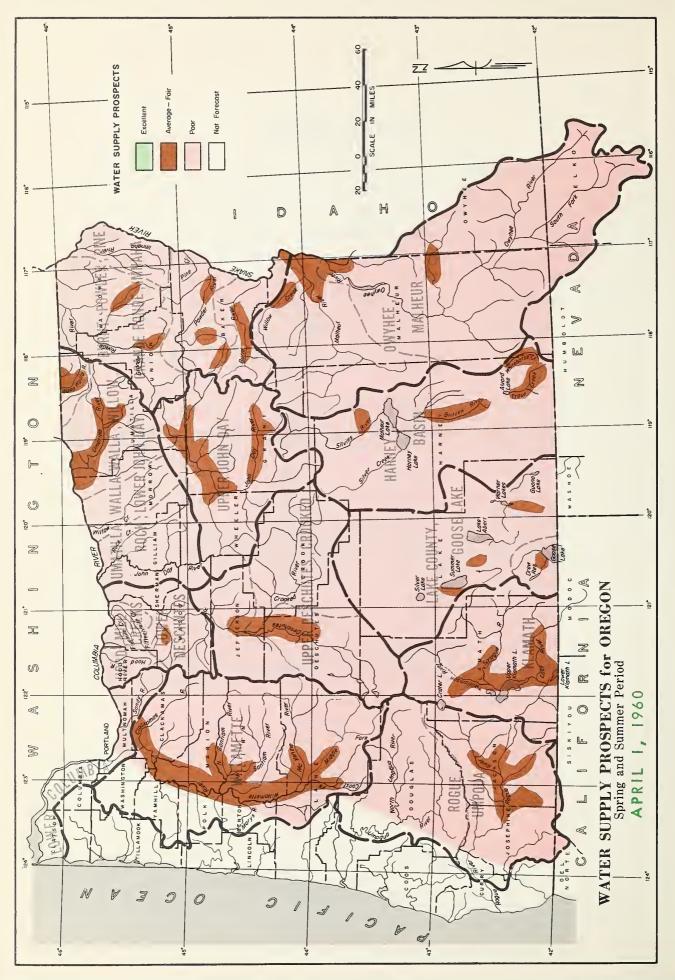
LEWIS A. STANLEY STATE ENGINEER STATE OF OREGON



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KLAMATH AREA 1	0
LAKE COUNTY, GOOSE LAKE AREA 1	1
HARNEY BASIN AREA 1	2
MAP AND INDEX OF OREGON SNOW COURSES(MAP)	

LIST OF COOPERATORS......INSIDE BACK COVER



WATER SUPPLY OUTLOOK for OREGON

APRIL 1, 1960

Oregon's water supply outlook for the spring and summer months of 1960 has changed only slightly during March but still varies from "low average" conditions to "poor" conditions. Heavy March rains brought a satisfactory "priming" of watershed soils at low and moderate elevations and added good catches of water to many reservoirs but increased the snowpack only at the highest elevations.

SNOW COVER:

Water content of the mountain snowpack in Oregon is about 67 percent of the April 1st average. Warm storms in March "wiped out" the low elevation snow and added to the snowpack principally at high elevations.

SOIL MOISTURE:

Watershed soils are well "primed" throughout the state except at high elevations under the snowpack. These high level soils will soak up some of the snow-melt water.

RESERVOIR STORAGE:

Total water stored in twenty-five larger reservoirs over the state is 98 percent of the 15 year average period 1943-57 for April 1 and 88 percent of the average for last year at this date. Lack of "carry-over" storage because of the dry season last year is causing much of the shortage this year.

STREAMFLOW:

Forecasts of streamflow for the 1960 irrigation season, April through September, have changed but slightly in the past month and are still well below average. Forecasts vary from as low as 47 percent of average on the Silvies River in Harney Basin up to a high of 91 percent average for the Willamette River at Salem.

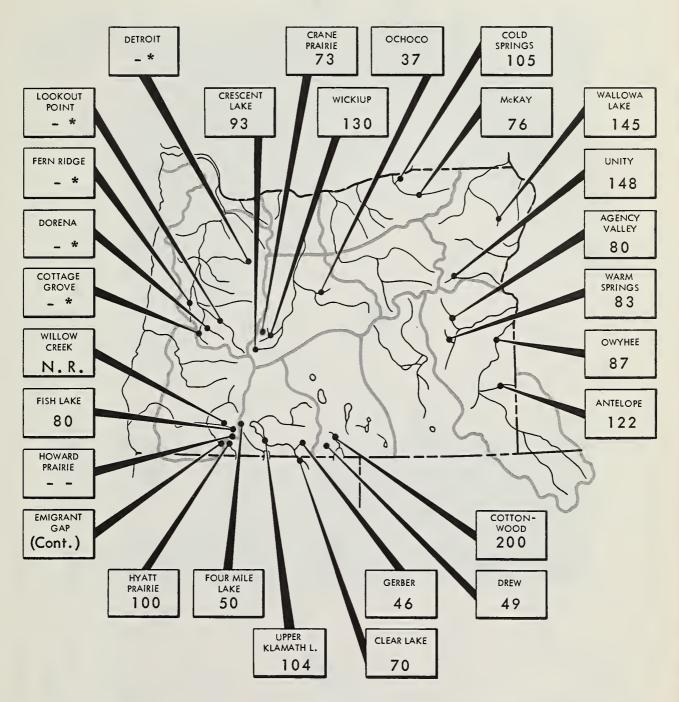
Forecasts of some other Oregon streams have been set at the following percent of the 15 year (1943-57) average:

Owyhee	64	John Day	59
Malheur	7 8	Crooked	66
Powder	80	Deschutes	90
Grande Ronde	74	Hood	68
Wallowa	59	Umpqua	77
Umatilla	88	Rogue	85

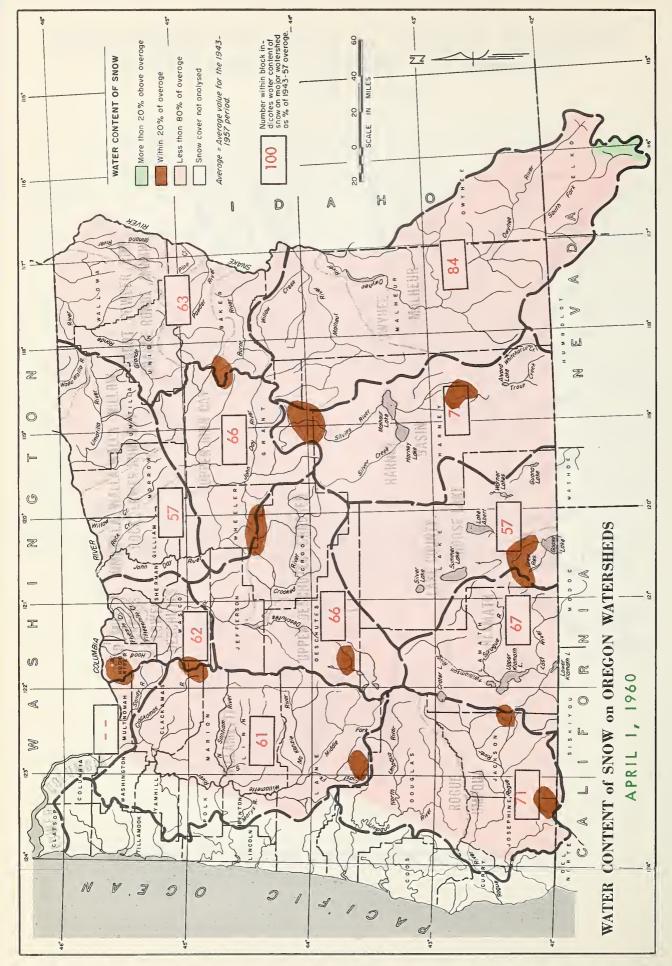


STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

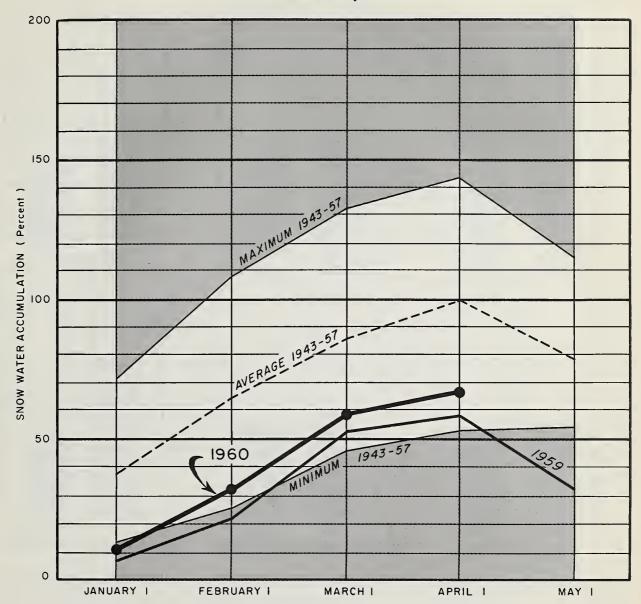
APRIL 1, 1960



*- Multiple purpose reservoir - space reserved primarily for flood runof). N.R. - No report.



SNOW WATER ACCUMULATION in OREGON APRIL 1, 1960

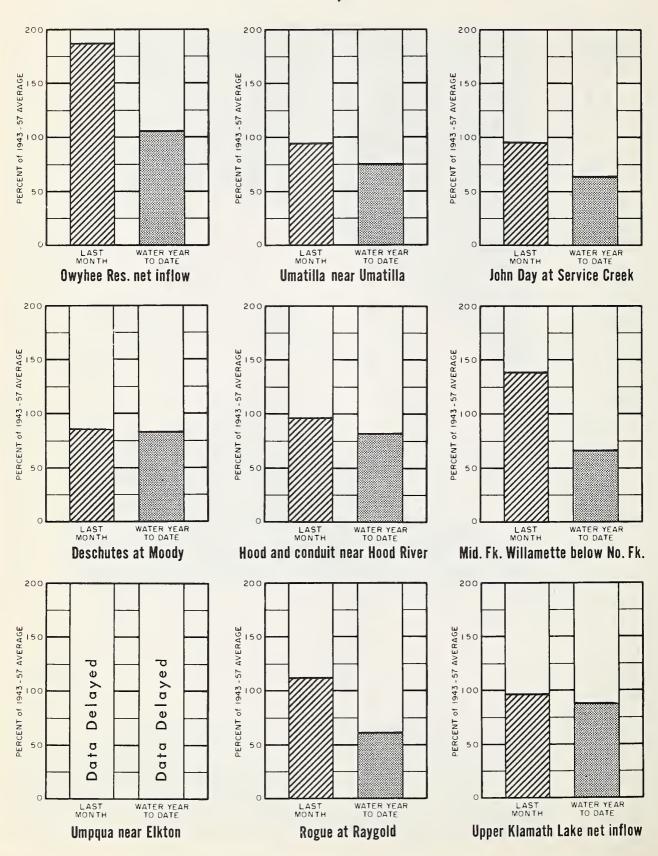


Snow water accumulation over the state as a whole increased only 7 percent during March, which is about half the normal increase for the month. The total year's accumulation is now only 66 percent of average (1943–57), leaving the state in general 34 percent below average for April 1.

CURRENT OREGON STREAMFLOW

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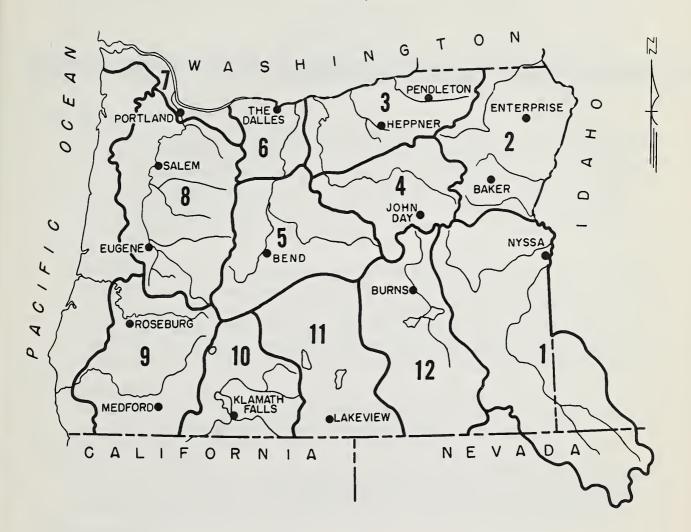
APRIL 1, 1960



Data furnished by U.S. Geological Survey; The California Oregon Power Co.; and North and South Boards of Control Owyhee Project. Water year begins Oct. 1, 1959.

VALLEY PRECIPITATION in OREGON a

APRIL 1, 1960



PRECIPITATION as PERCENT of the 1943 - 57 AVERAGE							
STATION	LAST MONTH	WATER b YEAR TO DATE	STATION	LAST MONTH	WATER b YEAR TO DATE		
BAKER APT. BEND BURNS ENTERPRISE EUGENE APT. HEPPNER JOHN DAY KLAMATH FALLS APT.	158 324 221 145 216 Report 111 299	78 67 104 85 81 Delayed 53 89	LAKEVIEW MEDFORD APT. NYSSA PENDLETON APT. PORTLAND APT. ROSEBURG APT. SALEM APT. THE DALLES	140 254 145 179 116 179 147 228	82 79 102 70 75 80 70 72		



WATER SUPPLY OUTLOOK OWYHEE, MALHEUR WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . DREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water outlook for Malheur County streams has improved somewhat because of increased stored water supplies resulting from snow-melt and rain during March. Satisfactory water supplies are now in sight for all lands irrigated from the major reservoirs of the area. The amount of water in sight is actually greater than that available in the dry year of 1955. Flow of small streams, however, will be "poor" and will be limited in late season to little or no water.

SNOW COVER

Water content of the mountain snowpack is now 84 percent of the 15 year average (1943-57) and is 147 percent of last year at this date. March storms, mostly warm and rainy, produced much above average streamflow which favored reservoir operators. These same storms contributed less than the average amount of snow to mountain areas, thus reducing the total water to be available from the "snow reservoir" as the snow melts. This is a distinct disadvantage for the user of natural streamflow.

SOIL MOISTURE

The soil mantle in the mountain watersheds is now well "primed" except for that portion lying under the snowpack at high elevations.

RESERVOIR STORAGE

Stored water supplies are now 86 percent of the average for 1943-57 and 87 percent of last year at this date. March brought better than usual increases in stored water. Antelope Reservoir has over 22,000 acre feet in storage and more coming daily.

STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, put Malheur River near Drewsey at 68 percent of the 15 year average (1943–57) and Malheur, North Fork at Beulah at 78 percent of average.

Inflow to Owyhee Reservoir in the April-September period is forecast at 64 percent of the average. The March inflow was 210,000 acre feet or 187 percent of the 15 year average.

Many small streams, making their annual spring run as this report is being written, will taper off rapidly in early May.

Report prepared by:

W. T. FROST AND BOB L. WHALEY

U.S. DEPARTMENT OF AGRICULTURE. SOIL CONSERVATION SERVICE

208 S.W. FIFTH AVENUE. PORTLAND 4. OREGON

STREAM or AREA	FLOW PERIOD		
OTTEAM OF AREA	SPRING SEASON	LATE SEASON	
Boulder Creek Bully Creek Cow Creek Jordan Creek Jordan Valley Irrig. Dist. McDermitt Creek Oregon Canyon Creek Owyhee Project Sucker Creek Ten Mile Creek Vale, Oregon Irrig. Dist. Warm Springs Irrig. Dist. Willow Creek	Fair Fair Fair Average Fair Average Fair Average Fair Average Fair Average Average	Poor Poor Poor Fair Poor Poor Average Poor Poor Fair Fair	

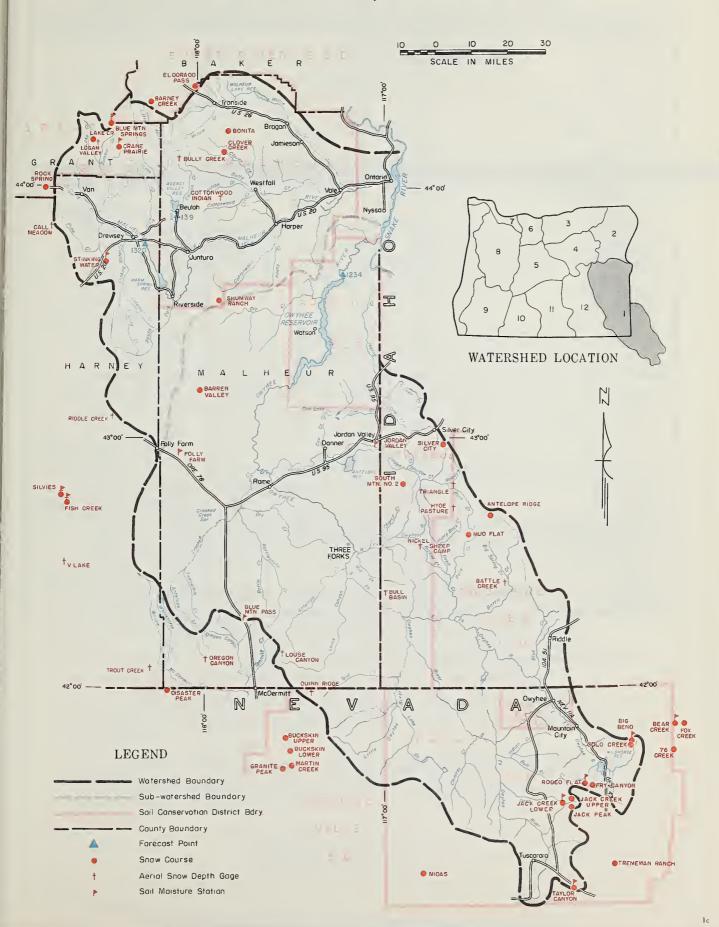
(1)000				
USABLE		ED (First o	f Month)	
CAPACITY	THIS YEAR	LAST YEAR	NORMAL b	
60.0	25.4	24 5	45.4	
		34.5	45.4 18.3	
1		523.2	539.0	
191.0			110.7	
			1101,	
	USABLE CAPACITY 60.0 54.7 715.0	USABLE CAPACITY THIS YEAR 60.0 36.4 54.7 22.4 715.0 469.9	CAPACITY THIS YEAR LAST YEAR 60.0 36.4 34.5 54.7 22.4 715.0 469.9 523.2	

STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b	THIS YEAR AS PERCENT
NO.	NAME	THIS TEAR			OF NORMAL
1320 139 1234	Malheur near Drewsey Malheur North Fork at Beulah ^d Owyhee Reservoir net Inflow ^g	55 50 275 255	April-Sept. April-Sept. April-Sept. April-July	81 64 430 412	68 78 64 62
	•				

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow.

OWYHEE, MALHEUR WATERSHEDS



SNOW		CURE	CURRENT INFORMATION		PAST RECORD		
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL b	NORMAL
Antelope Ridge	5900	3/30	8	3.0			0
Barney Creek	5950	3/23	22	7.5	5.9	8.7	13
Barren Valley	4200	f					
Battle Creeke	5700	4/2	0	0.0	0.0		0
Bear Creek	7800	3/28	52	19.4	18.8	21.3	13
Big Bend	6700	3/25	22	7.7	5.4	10.5	15
Blue Mountain Springs	5900	3/29	30	12.5	10.1	16.9	15
Buckskin, Lower	6700	3/29	14	6.0	5.9	8.0	14
Buckskin, Upper	7200	3/29	22	9.9	7.4	9.0	14
Bull Basine	5600	4/2	0	0.0	0.0		0
Bully Creek ^e	5300	4/1	T	T	0.0		0
Call Meadows	5340	3/29	12	5.0	111		o o
Clover Creek	4100	f		3.0			
Cottonwood-Indian ^e	4320	4/1	0	0.0	0.0		0
Crane Prairie	5375	3/29	17	6.8	6.4	9.8	15
Disaster Peak	6500	f	1 1	0.0	0.1	3.0	10
Eldorado Pass	4600	3/30	0	0.0	0.0		3
Fish Creek	7900	3/25	51	18.1	12.9	27.5	14
Fish Creek Fox Creek	6800	3/28	25	8.1	5.9	8.3	13
	6700	3/25	17	6.3	T	9.2	15
Fry Canyon		3/25	14	4.7	2.8	6.0	15
Gold Creek	6600		28	10.8	10.9	11.3	14
Granite Peak	7800	3/30	2 2		0.0		0
Hyde Pasture	5800	4/2	12	0.8	T	- - 2.5	15
Jack Creek, Lower	6800	3/23		4.5			
Jack Creek, Upper	7250	3/23	30	11.5	6.1	10.9	15
Jack Peak	8420	3/23	68	23.5	18.5		1
Lake Creek	5120	3/29	22	8.7	6.7	11.2	15
Logan Valley	5100	3/29	20	8.0			0
Louse Canyon ^e	6440	4/2	3	1.3	0.0		0
Martin Creek	7200	3/29	19	8.6	7.7	7.4	14
Midas	5700	3/28	Т	Т	0.0	1.7	13
Mud Flat	5500	3/30	0	0.0	3.0		0
Nickel Sheep Camp ^e	5450	4/2	Т	Т	0.0		0
Oregon Canyon ^e	7240	4/2	12	5.2	4.1		0
Quinn Ridge ^e	6200	4/2	0	0.0	0.0		0
Riddle Creek ^e	5300	3/22	11	4.4	0.0		0
Rock Springs	5100	3/29	11	4.3	1.0	4.9	15
Rodeo Flat	6800	3/25	16	6.5	0.9	8.7	15
Shumway Ranch	4500	3/30	0	0.0	0.0		0
Silver City	6400	3/27	32	13.5	10.1	18.2	10
Silvies	6900	3/25	35	14.0	7.0	14.2	13
South Mountain No. 2	6340	3/26	22	8.7	10.5	11.8	14
Stinking Water	4800	3/30	0	0.0	0.0	0.7	13
Taylor Canyon	6200	3/23	13	4.7	0.0	3.5	15
Tremewan Ranch	5700	f					
Triangle e	5150	4/3	0	0.0	0.0		0
Trout Creek ^e	7800	3/22	24	10.3	3.4		0
76 Creek	7100	3/24	29	11.0	7.7	12.0	9
"V" Lake e	6600	3/22	12	4.8	0.7		0

WATER SUPPLY OUTLOOK

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water supply outlook for Wallowa, Union and Baker Counties improved slightly on all streams except the Grande Ronde and the Wallowa streams. Snow cover failed to make a normal increase in March in the Wallowas, causing a drop in the forecasts of expected streamflow in Wallowa Valley and the Grande Ronde.

SNOW COVER

Water content of the mountain snowpack in the three counties averages 63 percent of the 15 year average (1943-57) and only 84 percent of last year. However, on watersheds of the Burnt and Powder Rivers, the snow is much better than this, although still below normal. The Aneroid Lake survey recorded only 20.5 inches of water, the lowest amount measured in the 30 years of record. Previous low was 21.0 inches in April of 1944.

SOIL MOISTURE

The watershed soil mantle is well primed in this area except at high elevations under the snowpack in Baker County.

RESERVOIR STORAGE

Stored water supplies are fairly satisfactory although less than on this date last year. There are no reports on stored water supplies in Malheur Lake (Willow Creek No. 3) and Thief Valley Reservoirs.

STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, are mostly much below normal. Best flows are expected from Catherine Creek and Powder River, which are forecast at 84 and 80 percent of the 15 year average (1943–57).

The forecast for the main Grande Ronde River has dropped to 74 percent average, while the Burnt River Forecast has increased to 67 percent average.

Flow forecasts for the Imnaha River and Wallowa Valley streams have dropped to 48 and 58 percent average, a reflection of the lack of snow on the Wallowa Mountains.

Many irrigated acres in the three northeastern Oregon counties will experience severe water shortages in the late season unless unusually heavy rainstorms provide needed relief.

Report prepared by:

W. T. FROST AND BOB L. WHALEY

U.S.DEFARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

209 S.W. Fifth AVENUE. PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" ar "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.)

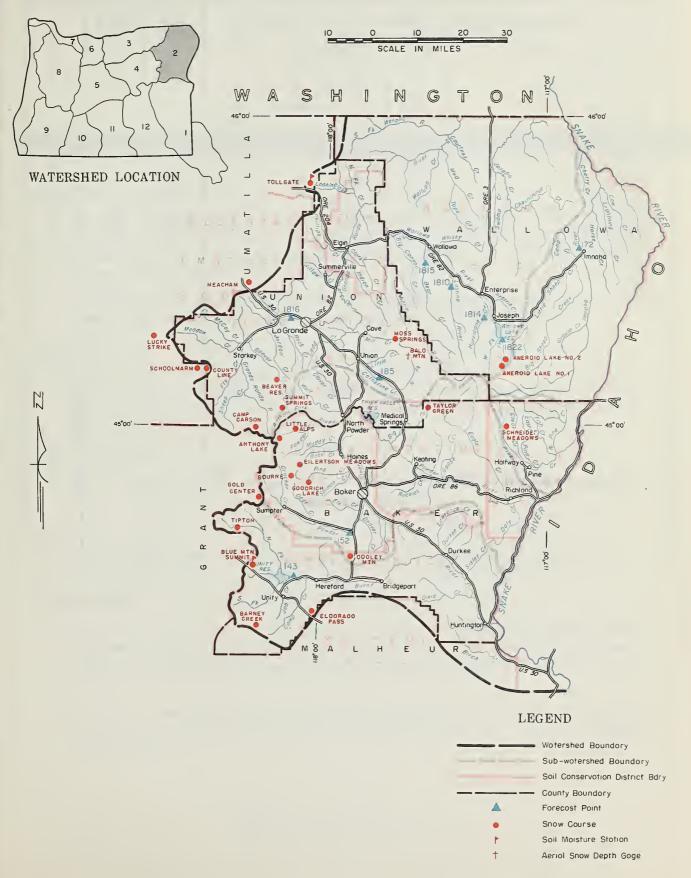
AIER SUPPLI UUILUUN "A	verage" ar "Ex			ESERVUIR STURF	- 1				
STREAM or AREA	FLOW PERIOD			RESERVOIR		USABLE		ED (First o	
	SPRING SEASON	LATE SEASON	Ļ			CAPACITY	THIS YEAR	LAST YEAR	NORMAL
Alder Slope	Fair	Poor		Unity		25.2	20.1	19.2	13.6
Baker Valley	Fair	Fair		Wallowa Lake	- 1	37.5	31.0	34.1	21.4
Big Creek	Fair	Poor		Wdllowd Lake	- 1	07.0	01.0	34.1	4
Clover Creek (near North	1 411	1001							Ì
Powder)	Fair	Poor							
Cove	Fair	Fair							
Durkee	Fair	Poor	1 1						
Eagle Valley	Fair	Poor	1 1		- 1				
Elgin	Fair	Poor							
Enterprise - Joseph	Average	Fair							
Hereford - Bridgeport	Average	Fair							
Imnaha River	Fair	Poor	1 1						
LaGrande - Island City	Fair	Fair			1				
Lostine - Wallowa	Fair	Poor							
North Powder River - Wolf	1	1001							
Creek	Fair	Poor	1 1						
Pine Valley	Fair	Poor							
Powder River - Elk Creek	Fair	Poor							
Summerville	Fair	Poor			- 1				i
Sumpter Valley	Average	Fair			- 1				
Union - Hot Lake	Average	Fair			- 1				
Unity	Average	Fair			- 1				
	1				- 1				
					- 1				
					- 1				

STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b	THIS YEAR AS PERCENT
1815 143 185 1816 1814 172 1810 152	Bear near Wallowa Burnt near Hereford d Catherine near Union Grande Ronde at LaGrande Hurricane near Joseph Imnaha at Imnaha Lostine near Lostine Powder near Baker Wallowa, East Fork near Joseph d	43 30 61 150 24 150 76 53 51 6.9 5.5	April—Sept. April—Sept. April—Sept. April—Sept. April—Sept. April—Sept. April—Sept. April—Sept. April—Sept. April—July April—July	74 45 73 202 49 314 133 66 65 12.1 9.7	58 67 84 74 49 48 57 80 78 57 57

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



Burnt, Powder, Pine, Grande Ronde, Imnaha Watersheds

WONS		CURRENT INFORMATION		PAST RECORD			
SNOW COURSE		DATE OF	SNOW DEPTH	WATER	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(inches)	CONTENT (Inches)	LAST YEAR	NORMAL b	NORMAL
Ameroid Lake No. 1	7480	3/26	54	20.5	36.0	39.4	15
Ameroid Lake No. 2	7000	3/26	42	15.9	25.5	30.4	15
Anthony Lake	7125	3/28	50	18.3	19.7	30.5	15
Bald Mountain (Oregon)	6700	3/27	51	18.8			0
Barney Creek	5950	3/23	22	7.5	5.9	8.7	13
Beaver Reservoir	5340	3/29	19	7.0	9.2	13.0	15
Blue Mountain Summit	5098	3/30	15	5.1	4.2	8.9	15
Bourne	5800	3/26	37	13.4	13.3	17.7	15
Camp Carson	5970		ISCON			1 1, 1,	1
County Line	4800	3/31	7	2.4	3.8	7.4	7
Dooley Mountain	5430	3/24	20	7.3	6.5	9.2	15
Eilertson Meadows	5400	3/27	20	7.5	7.2	12.2	15
Eldorado Pass	4600	3/30	0	0.0	0.0	12.2	3
Gold Center	5340	3/26	23	9.4	10.4	13.3	15
Goodrich Lake	6775	3/28	58	22.6	28.7	39.8	10
Little Alps	6200	3/28	30	10.0	9.7	39.0	0
Little Alps Lucky Strike	5050		32	11.6		14.7	14
Lucky Strike Meacham	4300	3/25 3/31	14	4.6	11.6 6.1	10.4	
							15
Moss Springs	5850	3/25	51	19.3	23.5	26.2	15
Schneider Meadows	5400	3/28	58	24.7	28.1	31.2	15
Schoolmarm	4775	3/31	3 T C C O N	1.0	1.5	5.7	8
Summit Springs	6000		ISCON			10.0	
Taylor Green	5740	3/29	34	12.4	17.6	18.2	14
Tipton	5100	3/24	23	8.8	6.8	10.7	13
Tollgate	5070	3/31	45	17.8	20.3	30.5	15
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WATER SUPPLY OUTLOOK

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS OREGON

as of
APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water supply outlook for Umatilla, Morrow and Gilliam Counties has not improved during March and remains slightly less than "average" and on down to "poor" for late season water supplies in most of the small streams such as Birch, Butter, Willow, Rhea and Rock Creeks.

Lands served from Cold Springs Reservoir are assured a full supply from that source. McKay Reservoir increased its storage during March to 43,000 acre feet.

SNOW COVER

Water content of the mountain snowpack is far below normal at 57 percent average and is only 86 percent of last year. The Lucky Strike snow course is the "brightest spot" of all with 11.6 inches of water in the snow, exactly the same as last year at this date.

SOIL MOISTURE

The soil mantle in local watersheds is well "primed" except at the higher elevations under the snowpack in the southwestern part of the area.

RESERVOIR STORAGE

Cold Springs Reservoir is full and McKay is 76 percent of its usual amount but is not expected to fill.

STREAMFLOW

Forecasts of flow of the Umatilla River at Pendleton for the April-September period have been dropped slightly to 88 percent of average. Forecasts for flow of the Walla Walla South Fork and McKay Creek remain the same as last month at 86 and 81 percent.

The smaller streams in the Walla Walla basin, such as Dry Creek, Dugger, Johnson, Mud and Pine Creeks can expect late season shortages and only "fair" water supplies in early season.

Report prepared by:

W. T. FROST AND BOB L. WHALEY

U.S.DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

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WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

	51.014	DE DIOD
STREAM or AREA		
	SPRING SEASON	LATE SEASON
Birch Creek Butter Creek Dry Creek Dry Creek Dugger Creek Johnson Creek McKay Creek Mill Creek Mud Creek Mud Creek Pine Creek Rhea Creek Rock Creek Umatilla River (Cold Springs Res.) Umatilla River, Main Umatilla River, Little Walla Walla River, Little Walla Walla River, Main Walla Walla River, Moin	Fair Fair Fair Fair Fair Fair Fair Fair	Poor Poor Poor Poor Poor Fair Poor Poor Poor Poor Fair Fair Poor Fair Fair Poor Fair Fair Fair Foor
	Birch Creek Butter Creek Dry Creek Dugger Creek Johnson Creek McKay Creek Mill Creek Mud Creek Pine Creek Rhea Creek Rock Creek Umatilla River (Cold Springs Res.) Umatilla River, Main Umatilla River, Main Umatilla Walla River, Little Walla Walla River, Main Walla Walla River, N. Fork Walla Walla River, N. Fork	Birch Creek Butter Creek Dry Creek Dry Creek Johnson Creek Mill Creek Mill Creek Mill Creek Mind Creek Mind Creek Mind Creek Fair Fair Fair Fair Fair Fair Fair Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

KEZEKANIK ZINKARE	(1,000	AC. PL.	,	
RESERVOIR	USABLE	MEASUR	ED (First o	f Month)
TOET VOIN	CAPACITY	THIS YEAR	LAST YEAR	NORMAL b
Cold Springs McKay	50.0 74.0	50.0 43.1	50.0 68.5	47.5 56.8

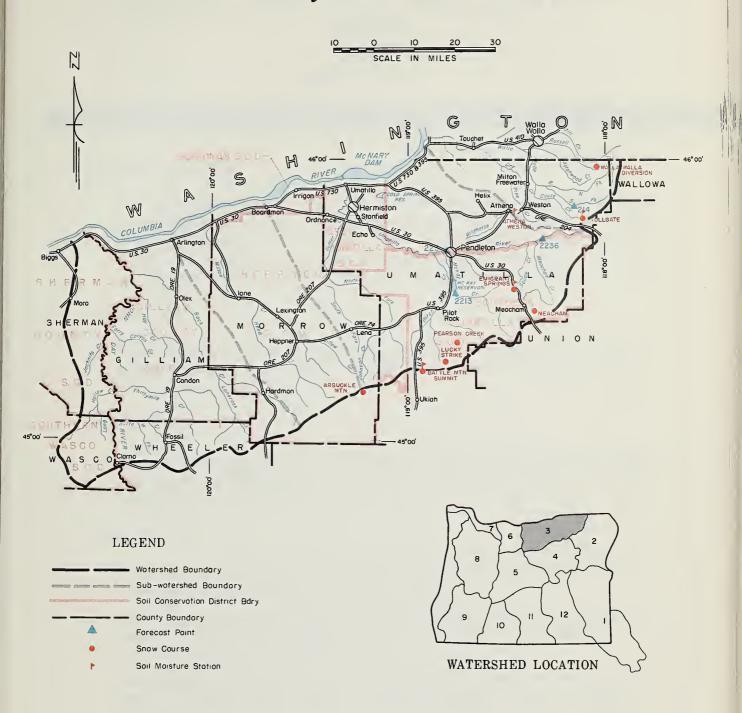
STREAMFLOW FORECASTS (1,000 Ac. Ft.)

NO.	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL 6	THIS YEAR AS PERCENT OF NORMAL
2213	McKay near Pilot Rock	25	April-Sept.	31	81
		25 ,	April-July	31	81
2236	Umatilla near Gibbon	83	April-Sept.	96	86
223	Umatilla at Pendleton	165	April-Sept.	187	88
		160	April-July	182	88
214	Walla Walla, South Fork near Milton	65	April-Sept.	76	86
		53	April-July	62	85

NOW		CURRENT INFORMATION			PAST RECORD		
SNOW COURSE	SNOW COURSE		SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL b	NORMAL
Arbuckle Mountain	5400	3/29	17	7.8	10.5	12.1	15
Battle Mountain Summit	4340	3/29	2	0.4	0.2		0
Emigrant Springs	3925	3/31	1	0.5	1.2	6.5	15
Lucky Strike	5050	3/25	32	11.6	11.6	14.7	14
Meacham	4300	3/31	14	4.6	6.1	10.4	15
Pearson Creek	3000	g					
Tollgate	5050	3/31	45	17.8	20.3	30.5	15
		1					
		1					
		(
		1				1	
		1	1				

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed.

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS



Umatilla, Walla Walla, Willow, Rock, Lower John Day Watersheds

WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE . OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water outlook for the John Day Basin has become poorer with March bringing rains which washed off much more of the snowpack than it replaced except in a few isolated areas. Irrigated lands can expect mostly "fair" water supplies on the larger streams to "poor" water supplies on the smaller streams unless timely rains in May and June improve the picture.

SNOW COVER

Water content of the mountain snowpack has been reduced to only 66 percent of the 15 year average (1943-57) and about 108 percent of the snowpack at this date last year.

SOIL MOISTURE

The watershed soil mantle is well "primed" except for those areas lying under the high mountain snowpack, which are still relatively dry and will soak up some of the snow-melt water.

STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, have been lowered because of the loss of snow.

For the main John Day at Prairie City, the forecast calls for a flow about 61 percent of the 15 year average. For the Middle Fork at Ritter the flow is forecast at 59 percent of the average.

Water supplies in the Beech Creek-Fox Creek-Long Creek area can be expected to be only "fair" in the early season and "poor" in the late season. Much the same conditions will prevail in watersheds of other small streams.

Strawberry Creek is forecast at 76 percent of the average.

Report prepared by:

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U.S. Department of Agriculture, Soil Conservation Service
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WATER SUPPLY OUTLOOK "Average" or "Excellent"

STREAM or AREA	FLOW	PERIOD
STREAM OF AREA	SPRING SEASON	LATE SEASON
Beech Creek Beech Creek-Fox-Long Crs. Bridge-Mountain Creeks Camas Creek Cherry Creek Indian-Pine Creeks John Day River, Main Fork John Day River, Mid. Fork John Day River, N. Fork John Day River, S. Fork Monument-Kimberly Strawberry Creek	Fair Fair Fair Fair Fair Average Average Average Fair Fair	Poor Poor Poor Fair Poor Fair Fair Fair Fair Fair Fair Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

KEZEKANIK ZIOK	AGE (1,000	AC. Ft.)	
RESERVOIR	USABLE	MEASUR	ED (First o	f Month)
RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	NORMAL b
1				

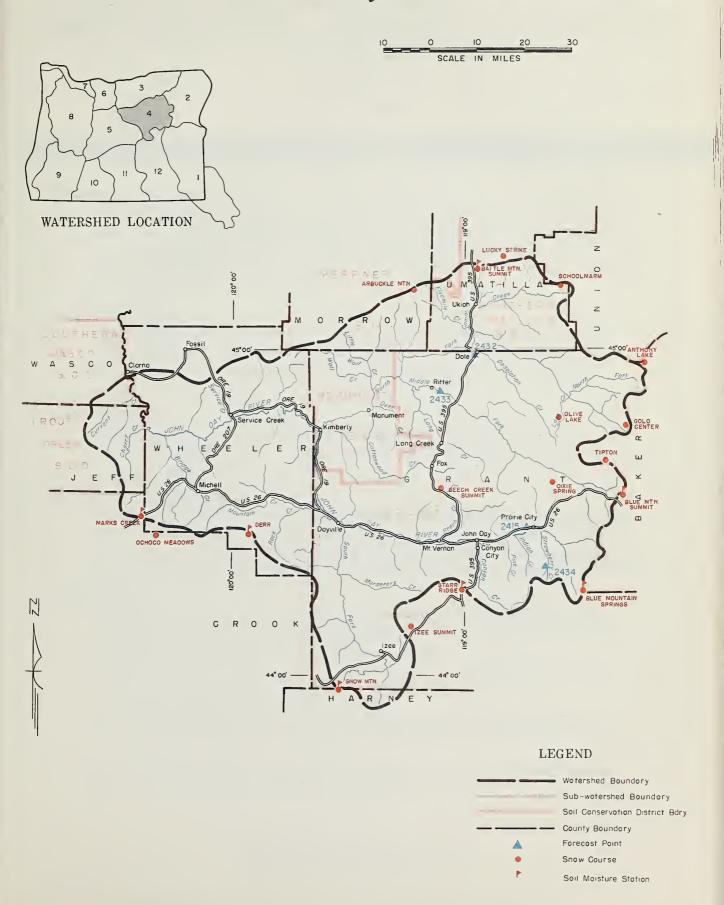
STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT		FORECAST PERIOD	NORMAL 6	THIS YEAR AS PERCENT	
NO.	NAME	THIS YEAR	101120201121100		OF NORMAL	
2415 2433 2434	John Day at Prairie City John Day, Mid. Fork at Ritter Strawberry near Prairie City	33 29 80 6.9	April-Sept. April-July April-Sept. April-Sept.	54 49 135 9.1	61 59 59 76	

DW	CURRENT INFORMATION			PAST RECORD			
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL b	NORMAL
Anthony Lake	7125	3/28	50	18.3	19.7	30.5	15
Arbuckle Mountain	5400	3/29	17	7.8	10.5	12.1	15
Battle Mountain Summit	4340	3/29	2	0.4	0.2		0
Beech Creek Summit	4800	3/28	0	0.0	0.0	5.2	15
Blue Mountain Springs	5900	3/29	30	12.5	10.1	16.9	15
Blue Mountain Summit	5098	3/30	15	5.1	4.2	8.9	15
Derr	5670	3/29	22	8.9 ^g	7.9	10.8	15
Dixie Springs	6650	3/29	44	16.0 ^g	16.1	24.7	15
Gold Center	5340	3/26	23	9.4	10.4	13.3	15
Indian Creek Butte ^e	6550	4/2	46	18.4			0
Izee Summit	5293	3/28	17	6.1	3.8	8.6	15
Lucky Strike	5050	3/25	32	11.6	11.6	14.7	14
Marks Creek	4540	3/28	3	1.1	T	2.9	15
Ochoco Meadows	5200	3/30	25	9.1	6.6	11.0	15
Olive Lake	6000	3/28	42	14.6	14.8	22.3	15
Schoolmarm	4775	3/31	3	1.0	1.5	5.7	8
Snow Mountain	6300	3/29	25	10.0	8.4	14.6	14
Starr Ridge	5156	3/28	10	3.5	1.3	5.9	15
Tipton	5100	3/24	23	8.8	6.8	10.7	13
Williams Ranch	4500	4/2	0	0.0			0
williams kanen	4500	4/2		0,0			

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated.

UPPER JOHN DAY WATERSHEDS



WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water supply outlook in the Deschutes-Crooked River region has improved slightly because of near normal increase in the mountain snowpack during March. However, water supply conditions will be mostly only "fair" to "poor" except where stored water is in sufficient supply to insure a near average outlook.

SNOW COVER

Water content of the mountain snowpack is only 66 percent of average and about 22 percent better than last year generally. March brought both rain and snow on the watersheds with an excellent increase in the higher snowpack.

SOIL MOISTURE

The soil mantle is well wetted except at the higher elevations under the remaining snowpack. These upper watershed soils will soak up some of the early snow-melt water.

RESERVOIR STORAGE

Stored water supplies are still below normal in the Cascades but are extremely low in the Crooked River basin where Ochoco Reservoir now holds 12,700 acre feet compared with 31,800 acre feet a year ago. There is reason to expect some water shortages for the Arnold, Lone Pine and Ochoco Irrigation Districts.

STREAMFLOW

The main Deschutes River at Benham Falls is forecast at 90 percent average, while the Little Deschutes is expected to flow 71 percent of the same 15 year average (1943–57) for the April-September period.

Crooked River is forecast at 66 percent average and inflow to Ochoco Reservoir at 45 percent for the irrigation season.

Squaw Creek and Tumalo Creek are forecast at 76 and 73 percent average respectively.

This year's streamflow is expected to be about the same or somewhat greater than it was last year.

Report prepared by:

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WATER SUPPLY OUTLOOK "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD			
STREAM OF AREA	SPRING SEASON	LATE SEASON		
Arnold Irrigation Dist. Bear Creek	Average Fair	Poor Poor		
Beaver Creek	Fair	Poor		
Camp Creek	Fair	Poor		
Central Ore. Irrig. Dist.	Average	Fair		
Crooked River	Fair	Poor		
Deschutes River	Average	Fair		
Hay-Trout Creeks	Fair	Poor		
Lone Pine Irrig. Dist.	Average	Poor		
Mill Creek	Fair	Poor		
North Unit Irrig. Dist.	Average	Poor		
Ochoco Creek	Fair	Poor		
Sisters Irrigation Dist.	Fair	Poor		
Snow Creek Irrig. Dist.	Fair	Fair		
Squaw Creek Irrig. Dist.	Fair	Poor		
Swalley Ditch	Average	Average		
Tumalo Project	Average Fair	Fair Fair		
Walker Basin Irrig. Dist.	rair	rair		

RESERVOIR STORAGE (1,000 Ac. Ft.)

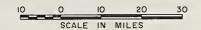
KEZEKANIK ZINKARE	(1,000	AG. Pt.	,					
RESERVOIR	USABLE	MEASUR	ED (First o	f Month)				
KESEKVOIK	CAPAÇITY	THIS YEAR	LAST YEAR	NORMAL 6				
Crane Prairie Crescent Lake Ochoco Wickiup	55.3 92.6 46.0 200.0	33.2 43.6 12.7 183.2	54.1 69.3 31.8 200.0	45.2 47.0 34.3 141.3				
that dead sto acre feet may storage figur About 12,000 transferred i	The U. S. Bureau of Reclamation indicates that dead storage in the amount of 5360 acre feet may be included in the current storage figure for Crescent Lake. About 12,000 acre feet of water has been transferred from Crane Prairie to Wickiup for holding since the latter reservoir is							
not expected	LO TITI							

STREAMFLOW FORECASTS (1,000 Ac. Ft.)

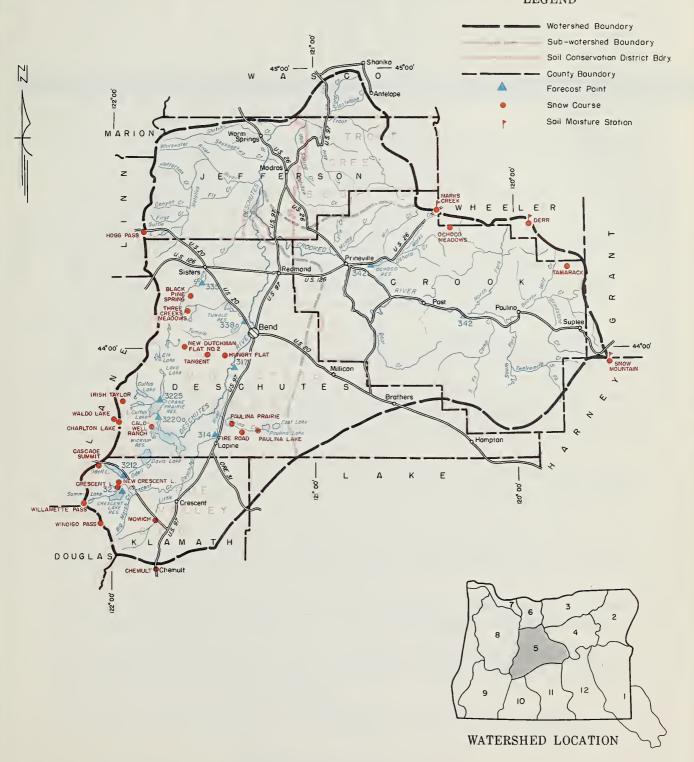
	FORECAST POINT	FORECAST	FORECAST PERIOD	NORMAL 6	THIS YEAR AS PERÇENT
NO.	NAME	THIS YEAR			OF NORMAL
3220a	Crane Prairie Reservoir total inflow	100	April-Sept.	143	70
323	Crescent at Crescent Lake d	20	April-Sept.	31	65
342	Crooked near Post	85	April-Sept.	129	66
317	Deschutes at Benham Falls d	540	April-Sept.	602	90
		365	April-July	404	90
3225	Deschutes below Snow Creek	55	April-Sept.	74	74
314	Deschutes, Little near Lapine ^d	80	April-Sept.	113	71
		66	April-July	100	66
3421	Ochoco Reservoir net inflow	15	April-Sept.	32	45
3212	Odell near Crescent	24	April-Sept.	34	71
335	Squaw near Sisters	42	April-Sept.	55	76
338a	Tumalo near Bend d	40	April-Sept.	55	73
		1			

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated.

UPPER DESCHUTES, CROOKED WATERSHEDS



LEGEND



Upper Deschutes, Crooked Watersheds

NOW		CURF	RENT INFORMA	TION	PAST RECORD			
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (inches)	YEARS IN	
NAME	ELEVATION	SURVEY	(Inches)	(inches)	LAST YEAR	NORMAL b	NORMAL	
Black Pine Spring	4600	3/30	2	0.3	2.5	4.7	5	
Caldwell Ranch	4400	3/23	22	9.6g	2.0	10.7	14	
Cascade Summit	4880	3/29	62	25.5	16.2	36.7	15	
Charlton Lake	5750	3/22	65	26.0	16.6	33.2	11	
Chemult	4760	3/28	14	5.2	4.4	11.2	14	
Derr	5670	3/29	22	8.9g	7.9	10.8	15	
Fire Road	5050	3/28	10	2.8			3	
Hogg Pass	4755	3/28	7,7	29.3	26.8	50.6	15	
Hungry Flat	4400	3/30	0	0.0	0.0	5.6	5	
Irish-Taylor	5500	3/23	79	32.7	21.8	48.4	8	
Marks Creek	4540	3/28	3	1.1	Т	2.9	15	
Mowich	4700	3/25	7	3.3			1	
New Crescent Lake	4800	3/24	33	13.3		19.7	6	
New Dutchman Flat No. 2*	6400	3/29	91	38.4	33.5	57.3	11	
Ochoco Meadows	5200	3/30	25	9.1	6.6	11.0	15	
Paulina Lake	6330	3/28	36	12.3			3	
Paulina Prairie	4285	3/28	0	0.0			3	
Snow Mountain	6300	3/29	25	10.0	8.4	14.6	14	
Tamarack	4800	C			1	-,		
Tangent	5400	3/29	44	16.9	11.1	25.9	5	
Three Creeks Meadows	5600	3/30	37	13.6	11.0	23.3	15	
Waldo Lake	5500	3/22	58	22.7	15.1	34.6	14	
Willamette Pass	5600	3/25	85	36.4		51.3	9	
Windigo Pass	5800	3/24	79	34.8	19.9	53.0	10	
*New snow course replacing New Dutchman Flat; normal is for old course.								

WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS OREGON

as of
APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water supply outlook (April-September period) for the Hood River and Wasco County areas has improved slightly on a few of the smaller streams because of a near normal increase in the mountain snowpack during March. Irrigated areas of the two counties can expect less than average water supplies on down to "poor" supplies in many areas during the late season.

SNOW COVER

Water content of the mountain snowpack is only 62 percent of the 15 year average (1943-57). At Greenpoint and Red Hill the snow is considerably greater than last year but still much below average. Snow at Brooks Meadows is less than half of the average and holds 6.9 inches of water compared with 9.8 inches last year at this date.

SOIL MOISTURE

The soil mantle is well wetted except at the higher elevations under the remaining snow-pack. These upper watershed soils will soak up some of the early snow-melt water.

STREAMFLOW

Forecasts for streamflow during the irrigation season, April through September, range from 72 percent average on the West Fork of Hood River to 68 percent average for the total stream at Hood River. Flow of White River below Tygh Valley is expected to be 65 percent average for the same six month period.

Mill Creek (at The Dalles) and the Mile Creeks can expect only "fair" water supplies in the early season with "poor" conditions slated for late season, resulting in early shortages.

Water supplies in sight for the irrigation districts of Hood River Valley will be only "fair". This is also the case for the Juniper Flat Irrigation District which, however, should have somewhat better late season water.

Flows of Tygh Creek, Badger, Rock, Gate and Threemile Creeks will be only "fair" in the early season and will rapidly drop off to "poor" supplies in the late season.

The flow of Hood River* during March was 94 percent average reflecting nearly normal precipitation. However, the flow for the water year (October 1 to date) has so far been only 79 percent average.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon.

Report prepared by:

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WATER SUPPLY OUTLOOK "Average" or "Excellent"

STREAM or AREA	FLOW	PERIOD
STREAM OF AREA	SPRING SEASON	LATE SEASON
Aldridge Ditch Badger Creek (near Wamic) Dee Irrigation District East Fork Irrig. Dist. Farmers Irrig. Dist. Glacier Irrig. Dist. Hood River Irrig. Dist. Juniper Flat Irrig. Dist. Middle Fork Irrig. Dist. Mile Creeks Mill Creek (nr. The Dalles) Mount Hood Irrig. Dist. Rock-Gate-Threemile Crs. Tygh Creek White River	Fair Fair Fair Fair Fair Fair Fair Fair	Poor Poor Poor Fair Poor Fair Fair Poor Poor Poor Poor Poor Poor Poor Po

RESERVOIR STORAGE (1,000 Ac. Ft.)

KEZEKANIK ZINKAGE	(1,000	AC. IT.)	
RESERVOIR	USABLE	MEASUR	ED (First o	f Month)
RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	NORMAL b
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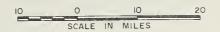
STREAMFLOW FORECASTS "(1,000 Ac. Ft.)

	FORECAST POINT NO. NAME		FORECAST PERIOD	NORMAL 6	THIS YEAR AS PERCENT
NO.					OF NORMAL
	- d				
437	Hood near Hood River	250	April-Sept.	365	68
1		210	April-July	311	68
438	Hood, West Fork near Dee	125	April-Sept.	174	72
		105	April-July	151	70
3613	White below Tygh Valley	115	April-Sept.	178	65
		100	April-July	161	62
l					

WONS	CURI	RENT INFORMA	TION	PAST RECORD			
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONTENT (Inches)		YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL b	NORMAL 6
Brooks Meadows Clear Lake Clear Lake Experimental Course Greenpoint Reservoir Knebal Springs Phlox Point Red Hill Still Creek Tilly Jane Ulrich Ranch Junction	4300 3800 3400 3850 5600 4400 3700 6000 3350	3/28 3/29 3/25 3/28 3/28 3/26 3/29 3/19 3/28	21 16 32 47 16 101 81 46 95 11	6.9 6.7 13.2 19.8 5.1 42.7 36.1 21.3 31.8 3.8	9.8 7.4 11.2 6.8 45.0 28.1 17.7 33.7 4.2	15.0 16.1 23.6 70.7 60.5 30.1 51.4 	15 15 0 7 1 15 10 15 8 0

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

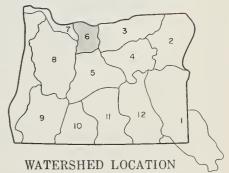
HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS





LEGEND

Wotershed Boundory
Sub-wotershed Boundory
Soil Conservation District Bdry.
County Boundory
Forecost Point
Snow Course



Hood, Mile Creeks, Lower Deschutes Watersheds

WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE. OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The water supply outlook for spring and summer flow of the Columbia River near The Dalles did not change significantly during March. The river is now forecast at 90 percent of the 15 year normal (1943–57).

SNOW COVER

All the snow courses in the Columbia Basin were measured near the first of April. Water content of the snow generally dropped slightly in relation to normal. Practically all of the basin now has a snowpack below normal.

SOIL MOISTURE

Watershed soils in the northern half of the basin are well primed and should not absorb a significant amount of the snow water when the melt begins.

Rainfall and snow-melt during the month of March increased soil moisture status at the lower elevations in the southern half of the basin. At high elevations, however, the soils are dry and will reduce streamflow from the light snowpack in the area.

STREAMFLOW

The March flow of the Columbia River near The Dalles* rose slightly above normal to 109 percent of the 1943-57 average and since October 1 has flowed as follows:

Month	Percent o	f Nor	mal D	ischarge (1943-57)			
October	182 Adjusted for storage							
November	161		11	II.				
December	132	11	11					
January	91	11	11	11				
February	96	11	11	11				
March	109	11	11	11				

*From preliminary data furnished by U.S. Geological Survey, Portland, Oregon

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and;

M. W. NELSON
U.S.OEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE
P.O. BOX 1247, BOISE, IOAHO

STREAMFLOW FORECASTS "(1,000 Ac. Ft.)

NO.	FORECAST POINT NO. NAME		FORECAST PERIOD	NORMAL 6	b AS PERCENT OF NORMAL	
09 – B	Columbia at The Dalles	95,600 65,500	April-Sept. April-June	106,100 72,000	90 91	

HISTORICAL DATA (Columbia River at The Dalles)

W5.15	s	TREAMFLOW C (1,000 A F	PEAK ^e	2475	
YEAR	APR.— SEPT.	APR. — JUNE	MAY - JUNE	(1,000 c.f.s)	DATE
1943 1944 1945 1946 1947 1948 1949 1950 1951	115,000 61,900 81,600 108,100 100,300 130,500 95,700 120,400 113,000 107,700	75,300 39,200 54,600 75,400 70,000 94,600 71,400 74,700 75,600 77,500	52,400 32,100 47,300 59,600 56,800 81,900 56,000 61,200 59,100 57,300	541 326 505 581 536 999 622 744 597 557	June 21 June 19 June 8 May 30 May 11 May 31 May 18 June 25 May 26 May 28
1953 1954 1955 1956 1957	100,600 119,500 99,500 131,400 105,700	64,900 70,500 58,300 96,900 80,500 72,000	55,800 59,300 50,300 75,800 67,200 58,100	609 561 545 815 700 616	June 17 May 23 June 26 June 3 May 22
1958	97,700	72,000	58,600	593	May 31

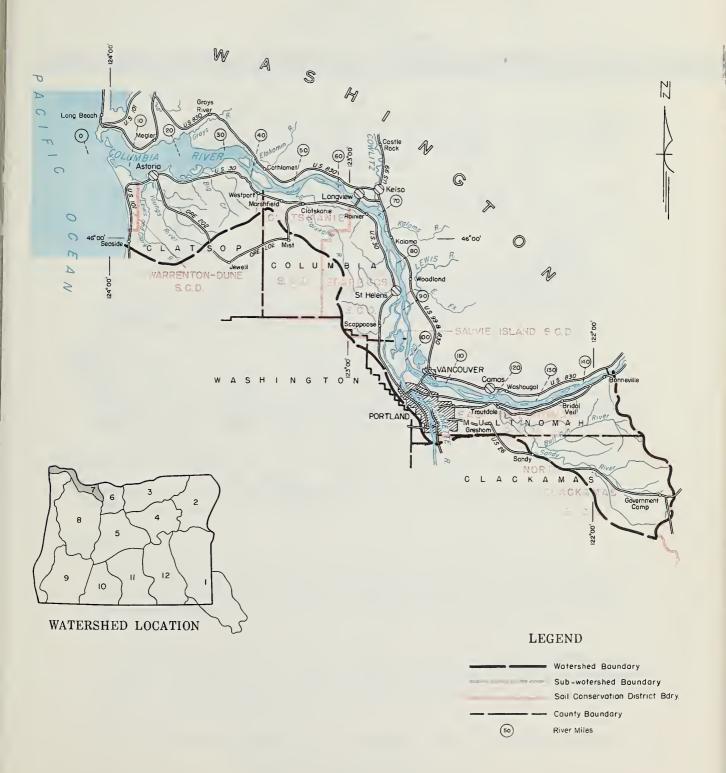
LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria) f

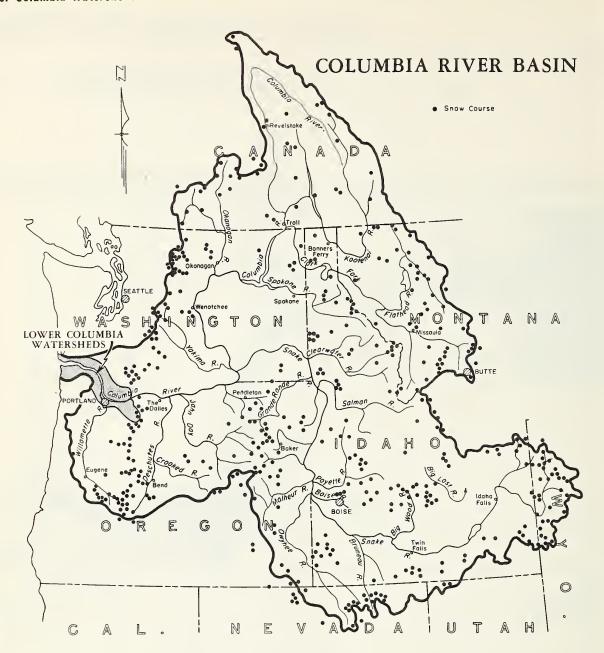
				DRAINA	GE DISTRICT PUM	PHOUSE	- 14 to - July 1 - 1 - 1 - 1			
VANCOUVER g	FLOW AT	SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON		
GAGE	THE DALLES	RIVER MILES								
(Weother Bu.)	(1,000 c.f.s)	118.9	96.0	91.0	77. 0	62.0	52.0	47. 0		
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5		
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0		
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3		
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7		
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0		
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4		
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8		
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4		
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0		
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7		
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3		
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2		
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0		
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7		
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6		
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4		
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3		
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1		
17	4 50	23.4	17.4	16.4	13.7	11.0	9.6	8.9		
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7		

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L. All other readings are in feet above M.S.L.

LOWER COLUMBIA WATERSHEDS







WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 water supply outlook for the irrigation season in Willamette Valley remains "fair" although improved slightly during the last month due to above normal precipitation over most of the valley.

Reservoir storage is above normal for this time of year in the five multi-purpose reservoirs and soil moisture improved during the last month.

SNOW COVER

Snow cover along the Cascades had a good increase during the month but is only 61 percent of the 1943-57 average. In general, it is 23 percent better than last year at this time but was melted back to fairly high elevations during the month by warm temperatures and rain.

SOIL MOISTURE

Soil moisture conditions were improved significantly during March by rains and snow melt on all but the higher watersheds under deep snow cover. These high watershed soils will still absorb some snow melt water.

RESERVOIR STORAGE

Storage in the five multi-purpose reservoirs in the valley is above normal for this time of year.

STREAMFLOW

Streamflow was above normal in most streams of the valley during the last month. The Middle Fork of the Willamette* flowed 137 percent of average (1943-57) last month but has still contributed only 65 percent of average for the October-March period.

Forecasts of spring and summer runoff have come up on the larger streams and now vary from 69 percent on the North Santiam to 91 percent on the main Willamette at Salem. Smaller streams without reservoir storage are still expected to have a "fair" to "poor" late season flow.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon.

Prepared by:

W. T. FROST AND BOB L. WHALEY

U.S.DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE
209 S.W. FIFTH AVENUE, PORTLAND 4. OREGON

WATER SUPPLY OUTLOOK expressed os "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW	PERIOD
OTTERM OF AREA	SPRING SEASON	LATE SEASON
Calapooya Clackamas McKenzie Molalla Santiam, North Santiam, South Willamette, Coast Fork Willamette, Middle Fork	Fair Average Average Fair Average Average Average Average	Poor Fair Fair Poor Fair Fair Fair
		_

RESERVOIR STORAGE (1,000 Ac. Ft.)

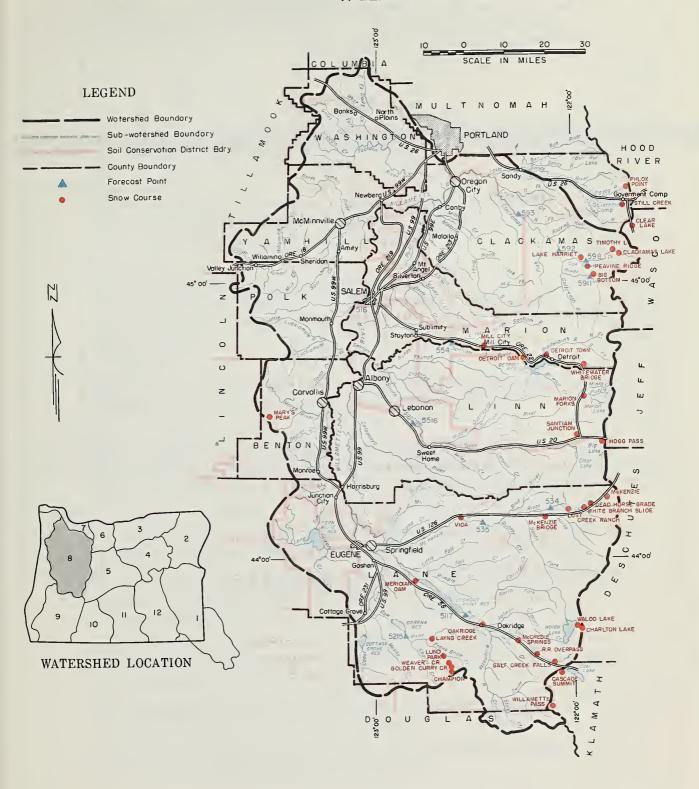
RESERVUIR STURAGE	(1,000	Ac. Ft.)		
* RESERVOIR	USABLE	MEASURED (First		of Month)	
112021110111	CAPACITY	THIS YEAR	LAST YEAR	NORMAL 6	
Cottage Grove Detroit Dorena Fern Ridge Lookout Point	30.0* 299.9* 70.5* 94.2* 337.2*	19.2 255.6 44.5 73.4 224.1	19.5 211.2 47.6 66.2 213.6	19.2 118.9 36.8 63.5	
rese rese	iple pur rvoirs rved pri flood ru	pace marily			

STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT	FORECAST	FORECAST PERIOD	NORMAL b	THIS YEAR
NO.	NAME	THIS YEAR	TOREGRATTERIOR	NOTHINAL 1	OF NORMAL
5011		105			
5911	Clackamas at Big Bottom	135	April-Sept.	184	73
593	Clackamas at Estacada	105	April-July	150	70
593	Clackamas at Estacada	775 670	April-Sept.	879 763	88
592	Clackamas above Three Lynx	575	April-July April-Sept.	674	88 85
032	Clackanias above infee Lynx	485	April-July	578	84
534	McKenzie at McKenzie Bridge	490	April-Sept.	640	77
001	nekenale di nekenale bildge	365	April-July	488	75
535	McKenzie near Vida	1020	April-Sept.	1362	75
	770000000000000000000000000000000000000	825	April-July	1120	74
598	Oak Grove Fork above Power Intake	155	April-Sept.	198	78
		120	April-July	156	77
5215	Row near Dorena	100	April-Sept.	114	88
		95	April-July	109	87
554	Santiam, North at Mehama ^d	670	April-Sept.	968	69
		590	April-July	866	68
5516	Santiam, South at Waterloo	485	April-Sept.	652	74
		450	April-July	616	73
5117	Willamette, Mid. Fork below North Fork	735	April-Sept.	909	81
	near Oakridge	645	April-July	804	80
516	Willamette at Salem d	4995	April-Sept.	5461	91
		4455	April-July	4942	90
					•

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Water content partly estimated.

WILLAMETTE WATERSHEDS



Willamette Watersheds

SNOW		CURI	RENT INFORMA	TION	PAST RECORD		
SNOW COURSE		DATE OF	SNOW DEPTH	WATER	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	CONTENT (Inches)	LAST YEAR	NORMAL b	NORMAL
Big Bottom	2118	4/1	0	0.0	0.0	9.4	7
Cascade Summit	4880	3/29	62	25.5	16.2	36.7	15
Champion	4500	4/1	74	28.9	17.4	33.8	15
Charlton Lake	5750	3/22	65	26.0	16.6	33.2	11
Clackamas Lake	3400	3/29	25	10.1h	5.5	19.5	12
Clear Lake	3500	3/29	16	6.7	7.4	16.1	15
Clear Lake Experimental Course		3/29	32	13.2			0
Dead Horse Grade	3800	3/30	45	16.1	10.1	27.5	8
Detroit Town	1600	3/28	0	0.0	0.0	T	7
Detroit Dam	1580	3/28	0	0.0	0.0	0.0	7
Golden Curry Creek	3136	4/1	T	Т	Т	8.7	8
Hogg Pass	4755	3/28	77	29.3	26.8	50.6	15
Lake Harriet	2045	4/1	0	0.0	0.0	0.2	7
Layng Creek	1200	4/1	0	0.0	0.0	0.0	8
Lost Creek Ranch	1956	3/30		0.0	0.0	1.7	6
Lund Park	1740	4/1	ŏ	0.0	0.0	0.0	8
Marion Forks	2730	3/28	21	7.9	3.5	16.7	15
Marys Peak	3620	g		,	""	10.7	1
McCredie Springs	2120	3/29	0	0.0	0.0	0.0	8
McKenzie	4800	3/30	96	36.0	29.0	52.3	14
McKenzie Bridge	1372	3/30	0	0.0	0.0	0.0	7
Meridian Dam	750	3/29	n	0.0	0.0	0.0	8
Mill City	826	3/28	o l	0.0	0.0	0.0	8
Mili City Oakridge	1310	3/29	ő	0.0	0.0	0.0	8
Peavine Ridge	3500	4/1	46	19.0	12.6	23.8	15
Phlox Point	5600	3/28	101	42.7	45.0	70.7	15
Railroad Overpass	2750	3/29	0	0.0	0.0	3.8	8
Salt Creek Falls	4000	3/29	38	16.2	8.4	23.9	8
Santiam Junction	3990	3/28	40	14.0	11.7	29.4	15
Still Creek	3700	3/28	46	21.3	17.7	30.1	15
Timothy Lake	3295	3/19	44	14.7	9.7		2
	800	3/19	0	0.0	0.0	0.0	7
Vida Waldo Lake	5500	3/30	58	22.7	15.1	34.6	14
		4/1	0	0.0	0.0	3.1	7
Weaver Creek	2440 2800	3/30	1	Т	0.0	7.6	8
White Branch Slide	2175	3/30	0	0.0	0.0	7.2	8
Whitewater Bridge	5600	3/25	85	36.4	21.8	51.3	9
Willamette Pass	3000	3/23	00	30.4	21.0	51.3	9
		1					

WATER SUPPLY OUTLOOK ROGUE, UMPQUA WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE. OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 water supply outlook in the Rogue-Umpqua watersheds for the irrigation season, April through September, has improved very slightly during March, but continues to be "fair" and not up to "average".

SNOW COVER

Water content of the mountain snowpack is 71 percent of the 15 year average (1943-57) and 130 percent of last year at this date. Warm rain storms in March "wiped out" much of the low elevation snow and added to the snowpack only at high elevations.

SOIL MOISTURE

Watershed soils are now fairly well "primed" except at the high levels under the snowpack. The soils in the upper levels will soak up some of the snow-melt water.

RESERVOIR STORAGE

Total stored water supplies are about average but still only about two-thirds of the amount available one year ago. Howard Prairie has 13,500 acre feet which makes up for the lackoof any water from Emigrant Gap Reservoir this year.

STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, have changed only slightly in the past month and are still well below average.

The main Rogue River at Raygold is forecast to flow 84 percent of the 15 year average. The Applegate and Illinois Rivers are forecast at 76 and 85 percent average, respectively.

Forecasts for the Little Butte indicate a 62 percent average flow on the North Fork and 71 percent average on the South Fork. Minimum flow of the South Fork should drop to 100 c.f.s. by June 1st.

On the Umpqua, the Clearwater is forecast at 74 percent average and the North Umpqua below Lake Creek at 77 percent average.

Flows of smaller streams in the two basins will be much below average and late season flow will taper off much earlier than usual.

WATER SUPPLY OUTLOOK expressed as "Paor", "Fair" "Average" or "Excellent"

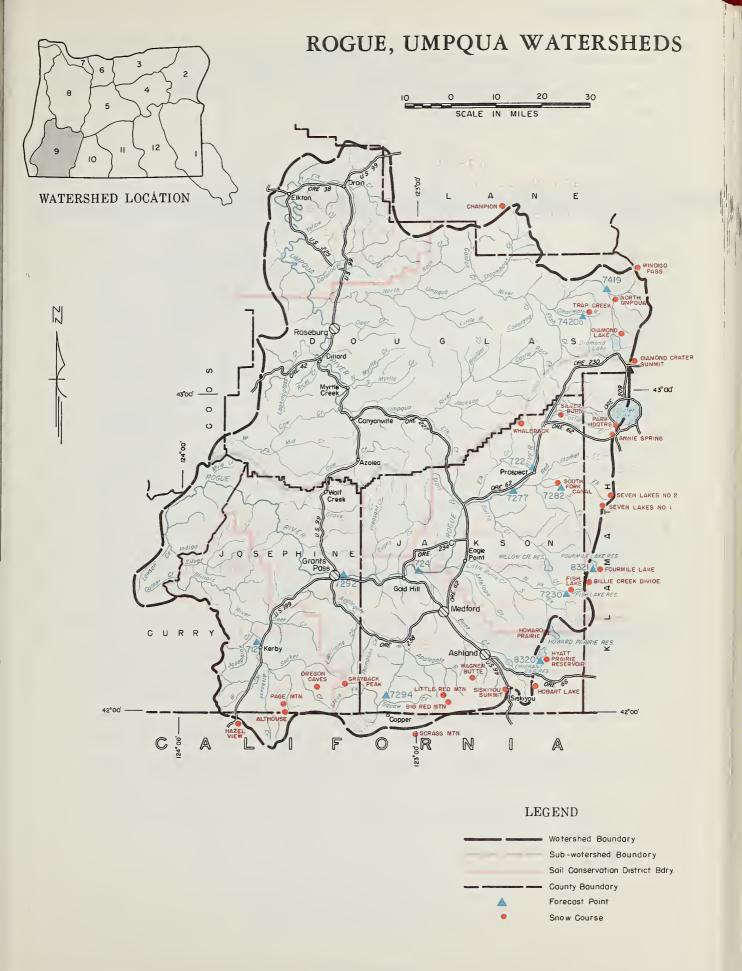
RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW	PERIOD		RESERVOIR	USABLE	MEASUR	ED (First o	f Month
	SPRING SEASON	LATE SEASON		RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	NORMAL
Althouse Creek	Fair	Fair		Emigrant Gap	8.3	i	6.7	7.4
pplegate River, Big	Fair	Fair		Fish Lake	7.8	4.4	8.0	5.5
plegate River, Little	Fair	Fair		Fourmile Lake	16.1	4.6	15.7	9.2
shland Creek	Fair	Fair		Howard Prairie	60.0	13.5	8.7	
itte Creek, Little	Fair	Fair		Hyatt Prairie	16.1	8.2	13.6	8.3
utte Creek, Big	Average	Fair		-				
ow Creek	Fair	Fair						
eer Creek	Fair	Fair						
lk Creek	Fair	Fair						
migrant Cr. (above Res.)	Fair	Fair	1					
ans Creek	Fair	Fair						
ld Hill Irrigation Dist.	Average	Average						
ants Pass Irrig. Dist.	Average	Average						
ave Creek	Fair	Fair						
linois River, East Fork	Average	Fair						
llinois River, West Fork	Average	Fair						
eil Creek	Fair	Fair			1			
ed Blanket Creek	Average	Fair						
ogue River	Average	Fair						
ucker Creek	Fair	Fair						
able Rock Irrig. Dist.	Average	Average						
hompson Creek	Fair	Fair						
agner Creek	Fair	Fair						
Villiams Creek	Fair	Fair						

STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT	FORECAST	FORECAST PERIOD	NORMAL b	THIS YEAR AS PERCENT
NO.	NAME	THIS YEAR	L		OF NORMAL
		1		202	
7294	Applegate near Copper	100 54	April-Sept.	131 73	76 74
7420a	Clearwater above Trap Creek ^d	4.8	April-Sept.	7.4	65
8321	Fourmile Lake net inflow ^d Hyatt Reservoir net inflow ^d	4.8	April-Sept. April-Sept.	6.2	77
8320 712	Illinois River near Kerby d	165	April-Sept.	196	85
7230	Little Butte, North Fork below Fish Lake ^d	10.5	April-Sept.	16.9	62
7230	Roque above Prospect	300	April-Sept.	351	85
/22	Rogue above Flospect	240	April-July	293	82
7263a	Rogue, South Fork near Prospect d	70	April-Sept.	83	84
/203a	Rogue, Douth Fork hear Frospect	59	April-July	71	83
7277	Roque below South Fork	625	April-Sept.	749	83
/2//	Rogue Delow Douth Fork	490	April-July	608	81
724	Roque at Raygold near Central Point	845	April-Sept.	1004	84
/21	Rogue at Raygola Real Contlai Folki	690	April-July	842	82
7292	Roque at Grants Pass	830	April-Sept.	974	85
7419	Umpqua, North Fork below Lake Creek ^d	144	April-Sept.	186	77
728	Little Butte, South Fork near Lake Creek	30	April-July	42	71
	Note: Minimum flow will drop to				
	100 c.f.s. by June 1, 1960.				
1					
		1			
		1			1
		1			

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed. (h) Water content partly estimated. (i) Construction.



Rogue, Umpqua Watersheds

3/28 3/29 3/30 4/1	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONT	ENT (Inches)	YEARS IN NORMAL
3/28 3/29 3/30	2 86	(Inches)	1	NORMAL b	NORMAL
3/29 3/30	86		5.9		
3/29 3/30			U.U	6.5	15
3/30		36.9	31.5	49.2	15
	32	9.9			0
	66	22.5	26.2	30.2	15
3/26	35	15.3	9.8	26.3	15
4/1	74	28.9	17.4	33.8	15
3/29	63	22.8	21.4		0
3/30	17	5.8h			ň
3/22	65	29.4	22.0		0
3/22	48	19.8	11.9	26.7	15
3/29	14	5.9h	3.2	14.4	14
3/29	59	25.6	11.4	29.4	6
3/30	72	26.2	24.7	27.4	15
3/28	0	0.0	0.0	2/.4	2
f 5/20	0	0.0	0.0		4
3/30	14	4.6 ^h			0
	11				_
3/29		4.2		9.9	14
4/2	40	14.7	22.2	24.1	15
3/28	26	8.6	2.6	16.3	14
3/28	1	0.2	2.6		3
3/29	98	41.2	40.9	63.7	14
			I .		0
					14
			B .		14
		_			15
					13
					15
3/29	27	9.2 ⁿ	0.0	12.5	10
g					
3/25	63	27.6	20.5	38.3	14
3/24	79	34.8	19.9	53.0	10
	11	1.4			_
					0
					0
					_
3/29	U	0.0			0
			1		
	3/25	3/23 98 3/23 79 3/28 24 3/30 4 3/28 0 3/29 27	3/23	3/23	3/23

WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

as of
APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water supply outlook for Klamath Basin is still only "fair" but has been improved during March by heavier than normal snow storms. Storage water will improve this outlook to "near average" for all lands served with the possible exception of lands served by Gerber Reservoir, which is still short in supply.

SNOW COVER

Water content of the mountain snowpack is only 67 percent of the 15 year average (1943-57) over the basin but is 132 percent of last year.

Much low elevation snow has already melted and run off, accounting for increased amounts in the reservoirs of the area.

SOIL MOISTURE

Watershed soils are mostly well wetted except for those at high elevations under the snowpack. These upper watershed soils will soak up some of the snow-melt water.

RESERVOIR STORAGE

Stored water supplies are mostly satisfactory with Upper Klamath Lake just short of last year's ample supply and right at the normal level.

Clear Lake and Gerber Reservoirs gained in storage during March considerably more than usual. Present water in storage plus expected inflows should put reasonable water supplies within reach for this year.

STREAMFLOW

Forecast of inflow to Upper Klamath Lake for the April-September period has been increased to 495,000 acre feet or 78 percent of average for the 15 year period. Flows of the Williamson and Sprague Rivers for the same six months are forecast at 75 and 56 percent of average.

Inflow to Clear Lake and Gerber Reservoirs during the irrigation season has been forecast at 72 and 68 percent of the 1943-57 average.

Inflow to Upper Klamath Lake* has been 87 percent normal since October 1st, 1959. The flow in March was 97 percent average.

*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon.

Report prepared by:

W. T. FROST ANO BOB L. WHALEY

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WATER SUPPLY OUTLOOK expressed as "Paar", "Fair" "Average" ar "Excellent"

STREAM or AREA	FLOW	PERIOD
STREAM OF SICE	SPRING SEASON	LATE SEASON
Ft. Klamath Valley Lost River (Clear Lake) Lost River (Gerber) Lost River (Willow Res.) Sprague River Upper Klamath Lake Williamson River	Average Average Average Fair Fair Average Average	Fair Fair Poor Poor Poor Fair Fair

RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE	MEASUR	ED (First o	f Month)
NEGENTON.	CAPACITY	THIS YEAR	LAST YEAR	NORMAL b
Clear Lake Gerber Upper Klamath Lk.	440.2 94.0 584.0	182.4 25.0 456.7	287.4 55.1 468.0	259.0 54.9 437.2

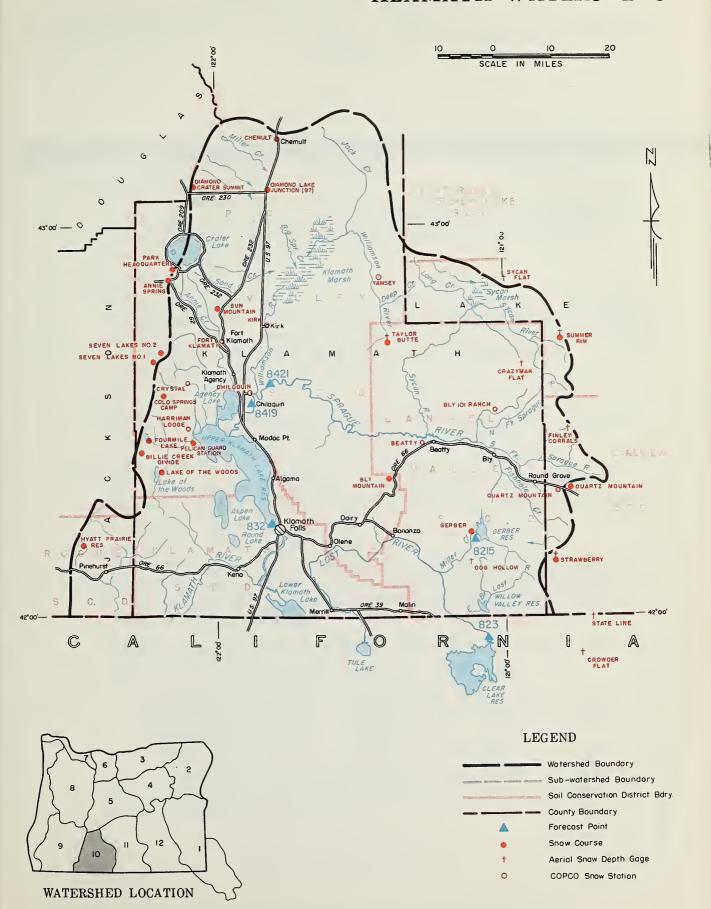
STREAMFLOW FORECASTS (1,000 Ac. Ft.)

	FORECAST POINT	FORECAST	FORECAST PERIOD	NORMAL b	THIS YEAR	
NO.	D. NAME		PORECAST FERIOD	NORWAL	OF NORMAL	
823	Clear Lake Reservoir inflow ^g	36	April-Sept.	50	72	
8215	Gerber Reservoir inflow g	17	April-Sept.	* 25	68	
8421	Sprague near Chiloguin	165	April-Sept.	296	56	
832	Upper Klamath Lake net inflow g	495	April-Sept.	632	78	
		340	April-July	518	66	
8419	Williamson below Sprague River	365	April-Sept.	486	75	
		277	April-July	413	67	

	NOW				PAST RECORD			
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (Inches)	YEARS IN	
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL &	NORMAL	
Annie Spring	6018	3/29	86	36.9	31.5	49.2	15	
Beatty (COPCO)	4300	3/31	0	0.0		0.0	14	
Billie Creek Divide	5300	3/26	35	15.3	9.8	26.3	15	
Bly Mountain	5090	3/29	1	0.2	1.3		0	
Bly 101 Ranch (COPCO)	4800	3/31	1	0.1	1	0.1	13	
Chemult	4760	3/28	14	5.2	4.4	11.2	14	
Chiloquin (COPCO)	4187	f	1	0.2	1	11.2	11	
Cold Springs Camp	6100	3/29	63	22.8	21.4		0	
Crazyman Flate	6100	3/23	17	6.8	4.1		0	
Crowder Flate	5200	3/24	0	0.0	0.0	0.2	9	
Crystal (COPCO)	4200	f		0.0	0.0	0.2	9	
Diamond-Crater Summit	5800	3/22	65	29.4	22.0		0	
Diamond Lake Junction (97)	4600	3/22	9	3.5	2.5		l n	
Dog Hollow e	4900	3/23	0	0.0	0.0		0	
Finley Corrals e	6000	3/23	28	16.4	6.8		l n	
Fort Klamath (COPCO)	4150	f	20	10.1	0.0			
Gerber	4850	4/1	0	0.0	0.0		4	
Harriman Lodge (COPCO)	4200	f	ľ	0.0	0.0		-	
Hyatt Prairie Reservoir	4900	3/29	11	4.2		9.9	14	
Kirk (COPCO)	4533	f 5/25	11	4.2	l	5.5	14	
Lake of the Woods	4960	3/27	18	6.0^{i}	6.4	11.9	15	
Park Headquarters	6450	3/29	98	41.2	40.9	63.7	14	
Pelican Guard Station	4150	3/29	0	0.0	0.0		0	
Ouartz Mountain	5320	3/25	10	4.4	0.0	5.4	15	
Ouartz Mountain (COPCO)	5504	3/25	11	3.9	3.6	5.7	13	
Seven Lakes No. 1	6800	3/23	98	46.4	34.2	60.0	13	
Seven Lakes No. 2	6200	3/23	79	34.7	22.8	44.1	14	
State Line e	5750	3/23	15	6.9	4.1	44.1	0	
	5600		8	3.6 i	2.9	7.9	13	
Strawberry Summer Rim		3/26	1 -	10.6 ⁱ				
Summer Rim Sun Mountain	7200 5350	3/20	28 48	20.7	9.6 12.8	19.7 29.1	15 15	
=-		3/24	1 1	20.7		29.1	15	
Sycan Flat e	5500	3/23	6	0.8	0.0		14	
Taylor Butte ^e Yamsey (COPCO)	5100 4600	3/23 f	2	0.8	0.0	4.3	14	

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From COPCO or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated.

KLAMATH WATERSHEDS



Klamath Watersheds

WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

as of
APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1960 irrigation water outlook for Lake County streams is still only "fair" in spite of heavy March storms which gave a real boost to water prospects of the Lakeview Water Users by providing an additional 13,500 acre feet of water in Drews Reservoir.

SNOW COVER

The mountain snowpack was partially "washed away" at 13 out of 17 reporting snow stations by heavy March rain storms. These same storms brought increasing snow cover to only four stations at the highest elevations. At present the water content of the snow is only 57 percent of the 15 year average (1943–57) but 184 percent of that for the same date last year.

SOIL MOISTURE

The soil mantle in Lake County watersheds is well "primed" by recent heavy rains and snow-melt except at the highest elevations under the snowpack.

RESERVOIR STORAGE

Stored water in Drews and Cottonwood Reservoirs totals 27,000 acre feet compared to 49,000 acre feet a year ago. This is only 54 percent of average for this date.

STREAMFLOW

The forecast of inflow to Drews Reservoir for the irrigation season, April through July, has been set at 30,000 acre feet or 88 percent of the average. This flow, if received, coupled with present storage, should provide a bare minimum for the lands served.

Forecast for the flow of the Chewaucan for the April-June period is set at 54,000 acre feet or 66 percent average.

Flow of the Warner Valley streams is forecast as follows:

Deep Creek above Adel	55,000	acre	feet	77 pe	ercen	t average
Honey Creek near Plush	12,300	50	11	75	51	"
Twentymile near Adel	13,300	ii	11	68	11	11

Silver, Bridge and Beech Creeks will have "fair" early season flows but "poor" conditions for the late season. This will be the pattern for most other small streams in the county.

Report prepared by:

W. T. FROST AND BOB L. WHALEY

U.S.DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW I	PERIOD
STREAM OF AREA	SPRING SEASON	LATE SEASON
Chewaucan River Crooked Creek Deep Creek Dry Creek East Side Goose Lake Guano Lake Honey Creek Lakeview Water Users Assn. Rock Creek (Hart Mtn.) Silver-Buck Creeks Summer Lake Thomas Creek Twentymile Creek Warner Lakes	Fair Fair Fair Fair Fair Fair Fair Fair	Fair Poor Fair Poor Poor Fair Fair Poor Poor Foor Poor Foor Poor Foor

RESERVOIR STORAGE (1.000 Ac. Ft.)

MESERVUIR STURAGE	(1,000	AG. Pt.	,		
RESERVOIR	USABLE	MEASUR	MEASURED (First of Monte		
RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	NORMAL &	
Cottonwood Drew	4.1 62.5	3.0 24.0	1.8 47.3	1.5 48.7	
				·	
			•		

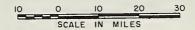
STREAMFLOW FORECASTS (1,000 Ac. Ft.)

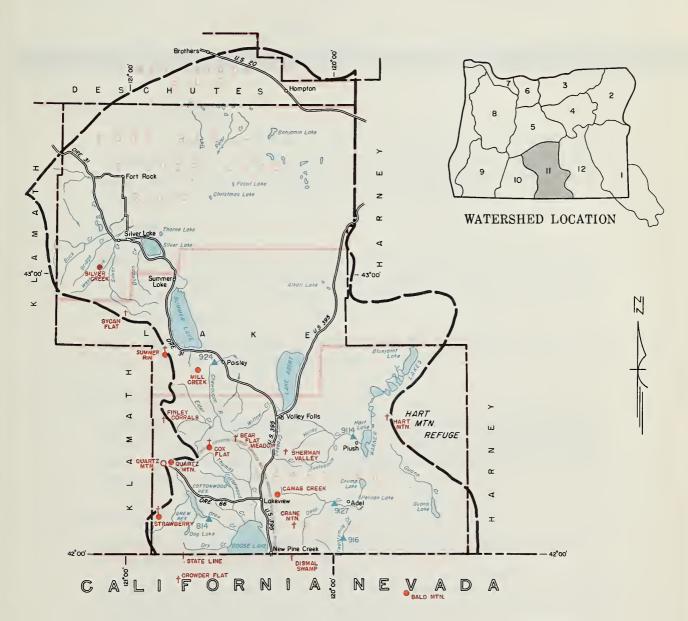
NO.	FORECAST POINT NAME	FORECAST THIS YEAR		NORMAL b	THIS YEAR AS PERCENT OF NORMAL
924 9127 814 9114 916	Chewaucan near Paisley Deep above Adel Drew Reservoir net inflow Honey near Plush Twentymile near Adel	54 55 30 12.3 13.3	April-June April-June April-July April-June April-June	82 71 34 16.3 20	66 77 88 75 68

0W		CUR	RENT INFORMA	TION		PAST RECORD	
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONT	ENT (Inches)	YEARS IN
NAME	ELEVATION	SURVEY	(Inches)	(Inches) (Inches)		NORMAL b	NORMAL
Bald Mountain (Nev.)	6720	f					
Bear Flat Meadow e	5900	3/23	26	10.4	7.5		0
Camas Creek	5720	3/27	20	9.4	3.0	11.8	15
Cox Flate	575 0	3/23	14	5.6	0.7		0
Crane Mountain ^e	6020	3/21	8	3.7	1.4		0
Crowder Flate	5200	3/24	0	0.0	0.0	0.2	9
Dismal Swampe (Calif.)	7000	3/24	40	18.4	7.1		0
Finley Corrals ^e	6000	3/23	28	16.4	6.8		0
Hart Mountaine	6350	3/22	0	0.0	0.0		0
Mill Creek	6200	3/28	12	3.4g	4.4	9.1	15
Quartz Mountain (COPCO)	5504	3/25	11	3.9	3.6	5.7	13
Quartz Mountain	5320	3/25	10	4.4	0.0	5.4	15
Sherman Valley ^e	6600	3/22	26	10.4	8.2		0
Silver Creek	4900	3/25	0	0.0	0.0	1.6	15
State Line ^e	5750	3/24	15	6.9	4.1		0
Strawberry	5600	3/26	8	3.6g	2.9	7.9	13
Summer Rim	7200	3/20	28	10.6g	9.6	19.7	15
Sycan Flate	5500	3/23	6	2.3	0.0		0

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated.

LAKE COUNTY, GOOSE LAKE WATERSHEDS





LEGEND



WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

as of APRIL 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

GENERAL OUTLOOK

The water supply outlook for the 1960 irrigation season remains only "fair" for Harney Basin. Snow cover improved only slightly and then only at the highest snow courses. Streamflow forecasts remain the same except for Trout Creek, which raised to 82 percent of average (1943-57).

SNOW COVER

Water content of the basin snowpack is still only 72 percent of average for April 1 although it is 175 percent of last year at this time. This high percentage is mainly due to many snow courses have very little if any snow at this time last year.

Above normal precipitation and temperatures during March reduced the snow cover at all but the highest elevations.

SOIL MOISTURE

Watershed soils have been fairly well primed by above normal rainfall on unfrozen soils at lower and moderate elevations. Higher elevation soils under a deeper snowpack have not received as much priming and will still absorb some of the runoff.

STREAMFLOW

The forecasts of streamflow for the April-September period vary from 47 to 82 percent of average (1943-57).

Silvies River is expected to flow 50,000 acre feet or 47 percent of average, the Blitzen 50,000 acre feet at 75 percent, and Trout Creek raised slightly to 7,500 acre feet at 82 percent of average.

Low elevation watersheds have lost the snow cover they had a month ago and cannot be expected to produce good streamflow unless unusually heavy precipitation occurs in the next few months.

Report prepared by:

W. T. FROST AND BOBL. WHALEY

U.S.OEFARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE, PORTLAND 4. OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD			
STILLEN OF CILE	SPRING SEASON	LATE SEASON		
Catlow Valley Cow Creek Donner und Blitzen River Mill-Coffeepot Creeks Rattlesnake Creek Silver Creek Silvies River Soldier-Prather Creek Trout Creek Whitehorse Creek	Fair Fair Fair Fair Fair Fair Fair Fair	Fair Fair Fair Fair Fair Poor Poor Fair Fair		

RESERVOIR STORAGE (1,000 Ac. Ft.)

MEDERION DIONAGE (1,000 NO. 11.7							
RESERVOIR	USABLE	MEASURED (First of Month)					
- NESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	NORMAL B			
				1			

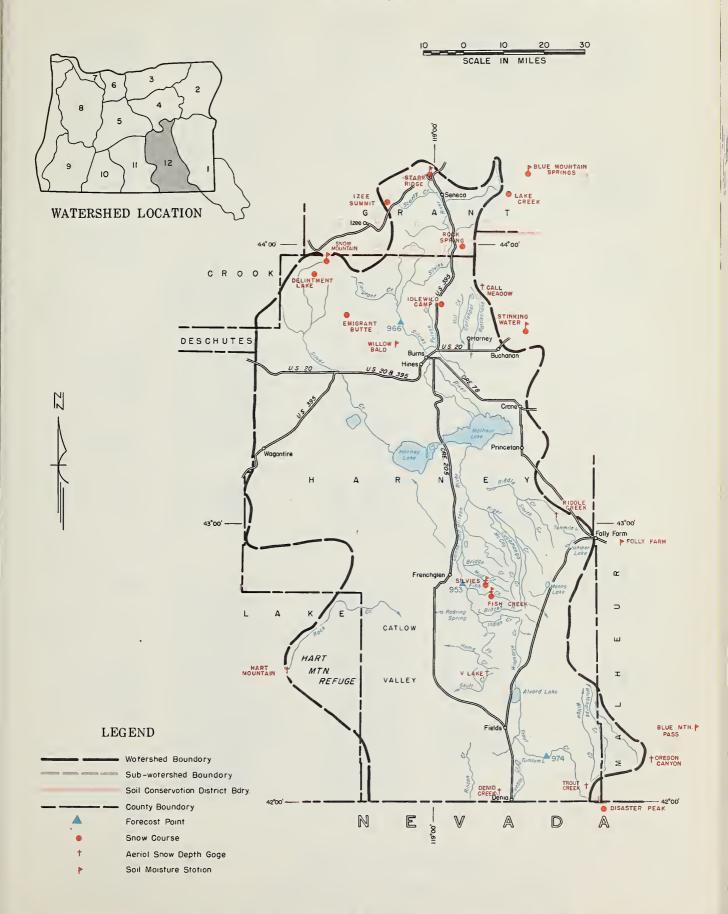
STREAMFLOW FORECASTS (1,000 Ac. Ft.)

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL 6	THIS YEAR AS PERCENT OF NORMAL
953	Donner und Blitzen near Frenchglen	50	April-Sept.	67	75
966	Silvies near Burns	50	April-Sept.	107	47
974	Trout near Denio	7.5	April-Sept.	9.2	82

SNOW COURSE				TION	PAST RECORD		
NAME	SNOW COURSE		SNOW DEPTH	WATER CONTENT	WATER CONTENT (Inches)		YEARS IN
	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	NORMAL b	NORMAL b
Blue Mountain Springs	5900	3/29	30	12.5	10.1	16.9	15
Call Meadow	5340	3/29	12	5.0			0
Delintment Lake	5600	3/29	16	6.0	3.8	10.0	8
Denio Creek ^e	6000	3/22	0	0.0	0.0		0
Disaster Peak	6500	f					
Emigrant Butte	5000	3/29	2	0.5	0.0		1
Fish Creek	7900	3/25	51	18.1	12.9	27.5	14
Hart Mountain ^e	6350	3/22	0	0.0	0.0		0
Idlewild Camp	5200	3/29	9	3.2 ^g	0.4	5.0	15
Izee Summit	5293	3/28	17	6.1	3.8	8.6	15
Lake Creek	5120	3/29	22	8.7	6.7	11.2	15
Oregon Canyon ^e	7240	4/2	12	5.2	4.1		0
Riddle Creek ^e	5300	3/22	11	4.4	0.0		0
Rock Spring	5100	3/29	11	4.3	1.0	4.9	15
Silvies	6900	3/25	35	14.0	7.0	14.2	13
Snow Mountain	6300	3/29	25	10.0	8.4	14.6	14
Starr Ridge	5156	3/28	10	3.5	1.3	5.9	·15
Stinking Water	4800	3/30	0	0.0	0.0	0.7	13
Frout Creek e	7800	3/22	24	10.3	3.4		0
'V" Lake e	6600	3/22	12	4.8	0.7		0

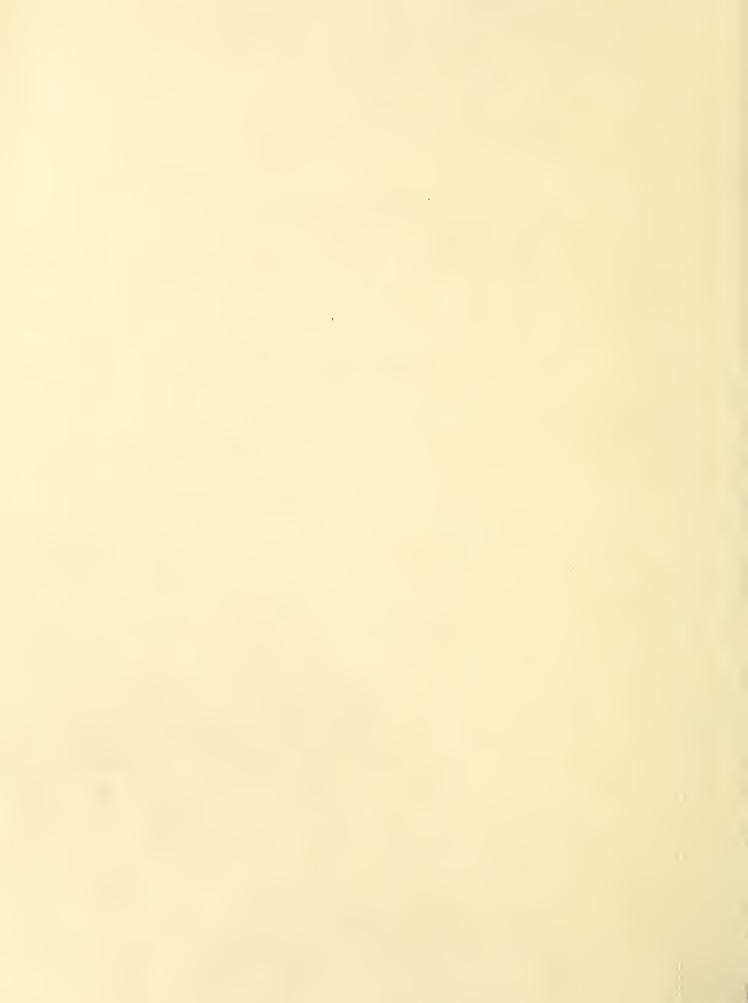
⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated.

HARNEY BASIN WATERSHEDS



Harney Basin Watersheds

54C, T+P, 008,					% (C	SEC. TUP, ROE
OWYHEE, MALHEUR WATERSHEDS (1)	Oughee River Continued 15H3 76 Creek (Nev) 6 WM 58E 7200	BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS (2)	Grande Ronde River	UPPER DESCHUTES, CROOKED WATERSHEDS (5)	Middle Fork Willomotte River	The California Oregon Power Company's
Owyhee River	17F1 Shumay Ranch 29 233 39E 4400 16F3 Silver City (Ida) 6 5S 3W 6400		17D1 Ameroid Lake No. 1 16 Ls L5E 7L80 17D2 Ameroid Lake No. 2 16 Ls L5E 7000	Upper Deschutes River	22F3 Caseado Surmit 7 23S 68 4880 21F7 Charlton Lako 23 21S 6E 5750	Snow Stotions
16G6 Antelopo Ridge (1da) 32 88 1W 5900 18F5 Barren Valley 26 27S 38E 4200	1801 Silvies 35 328 328E 6900	Burnt River	18E1 Anthony Lake 18 75 37E 7125 17D10 *Bald Mountain 14 & 15 4s 41E 6700	21E1 Mack Pine Spring 14 168 9E 4600	22F6 McCredie Springs 36 215 48 2120	1 Reatty (COPCO) 22 36S 12E 4300 10 My 101 Ranch (COPCO) 22 35S 1ME 4800
18F5 Barren Valley 26 278 306 4200 1609 *Battlo Crock (Ida) 10 118 1E 5700 15H1 Bear Crock (Nev) 31 46M 58E 7800	15H9 Taylor Canyon (Nev) 35 39H 53E 6200	Ell, Barney Creek 16 11s 36E 5950 El3 Hluo Mountain Sumuit 6 12S 36E 5098	18D9 Beaver Roservoir 8 5S 37E 5340 18D1 Camp Careon 33 6S 36E 5970	21F8 Caldwell Ranch 30 21S 8E 1400	22F7 Calcridge 16 215 3E 1310	3 Chiloquin (COPCO) 31, 345 7E 1187 4 Crystal (COPCO) 26 345 6E 1200
1609 **Battlo Croek (Ida) 10 113 1E 5700 1511 Bear Crook (Nev) 31 1601 58E 7800 1511 Elg Bend (Nev) 30 1591 56E 6700 1712 Buckekin, Lower (Nev) 25 1511 39E 6700 1711 Buckekin, Upper (Nev) 11 1511 39E 7200	1604 WTriangle (Ida) 25 78 3W 5150	En Dooley Mountain 32 115 40E 5430 En Dooley Mountain 32 115 40E 5430 En Dooley Mountain 32 115 40E 5430	1808 County Line 28 LS 3LE 1800 1806 Lucky Strike 28 3S 32E 5050	21F7 Charlton Lake 21 275 05 5750	22F5 Railroad Ovorpass	5 Fort Klamath (COPCO) 22 335 748 h150 8 Harriman Ledge (COPCO) 3 365 68 h200
15Hl Bear Crook (Nev) 31 L5N 568 6700 15Hl Big Bend (Nev) 30 L5N 568 6700 17H2 Buckekin, Lowor (Nev) 25 L5N 398 6700 17H1 Buckekin, Upper (Nev) 11 L5N 398 7200	1807 #FVF Lake 31 354S 32 8E 6600 18	E8 Gold Center 21 98 36E 5340 E9 Tipton 34 108 35 E 5100	18D5 Meacham 24 4 25 1S 35E 4300	21F9 Crescent Lake 11 24s 66 4760 21F14 Fire Road 36 21s 11B 5050	22F2 Waldo Lako 15 215 68 5500 22F14 Willametto Pass 33 245 548 5600	6 Kirk (corco) 1 338 7E 4533
18HD Phasator Peak (Nov) 8 47N 34E 6500	Malheur River	Ly lipcon	ALDO MORE Spring OF 35 LIE SASD	2176 Hogg Pass 24 135 748 1755		9 Quarte Mountain (COPCO) 33 378 16E 550h 12 Yamsey (COPCO) 20 31S 11E 4600
1802 Fish Creek (Nov.) 33 46N 58E 6800	18ELL Earney Creek 16 1LS 36E 5950	Powder River	18D7 Schoolmarm 28 Ls 3LE 4775 18D10 Summit Springs 9 68 37E 6000 17D7 Taylor Oreen 3 68 42E 5740	21F6 Irish-Taylor 25 20S 6E 5500	Coost Fack Willamette River	
15H7 Fry Canyon (Nov) 31 43H 54E 6700 15H5 Gold Crock (Nov) 31 45H 56E 6600	18E16 Eluo Mountain Spring 21 155 35E 5900 18	El Anthony Lake 18 7S 37E 7125 E5 Pourne 33 8S 37E 5800	18D3 Tollgate 32 4N 38E 5070	or The Mary Crescent Lake 11 2/S 6F 1/800	22F9 Champion 12 23S 1E 4500	LAKE COUNTY, GOOSE LAKE WATERSHEDS (II)
17Hh Granite Peak (Nov) 22 Hall Sept 5800	18E21 *Bully Creek 10 17S 37E 5300 17	Dooley Mountain 32 11S 40E 5430	Imnaho River	21F19 New Intermal Flat #2 21 105 98 6400 21F13 Paulina Lake 34 21S 12E 6330	22F10 Oolden Curry Creek 1 23S 18 3136 22F13 Layng Creek R. S. 31 21S 18 1200	Constitution
16Hl Jack Crook, Lower (Nev) 18 42N 53E 6800	17E2 Clover Creok 36 16S 39E 4100 18	E8 Gold Center 21 98 36E 5340	17D1 Ameroid Lake No. 1 16 48 45E 7480	21F15 Paulina Prairie 28 21S 11E 4285 21F3 Tangent 28 18S 10E 5400	22F12 Lund Park 22 22S 18 1740 22F11 Weaver Crook 35 22S 1E 2440	Gooso Lake 20015 *Pear Flat Meadow 27 36S 19E 5900
War 28 12N 53E 8420	18E19 Crane Prairio 24 16S 34E 5375 18	E23 Little Alpe 10 7S 37E 6200	17D2 Ameroid Lake No. 2 16 US USE 7000	21El3 Three Creek Meadows 3 178 9E 5600 22F2 Waldo Lake 15 21S 6E 5500		2008 Camas Creek 5 39S 21E 5720
17H3 Martin Creek (Nev) 18 19H 46E 7200	18E20 Eldorado Pass 20 14S 38E 4600 18 18E18 Lake Creek 10 16S 334E 5120 17	010 Summit Springa 9 6S 37E 6000 07 Taylor Green 3 6S 42E 5740	UMATELA WALLA WALLA WILLOW BOOK	22FIL Willamette Pass 33 24S 51E 5600 22FIS Windigo Paes 20 25S 6E 5800	Mory's River	20016 *Crane Mountain 13 405 21E 6020
1607 Mud Flat (Ida) 31, 98 2W 5500	18F6 Riddlo Creek 21 293 358 5800 18F1 Rock Spring 23 18S 32E 5100 17F1 Shumsay Ranch 29 23S 39E 4400		UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS (3)		23El Mary's Poak 21 12S 7W 362G	2011] *Dismal Swamp (Cal) 31 48R 16E 7000
1705 *Oregon Canyon 9 1108 1108 72110	18Fh Stinking Water 33 21S 3hE 4800	Pine Creek		Crooked River		2011 *State Line (Cal) 21 1811 11E 5750
17H6 *Quinn Ridgo (Nov) 9 47N 41E 5300 15H6 Rodeo Flat (Nev) 36 43H 53E 6800	18E22 *Logan Valley 13 16S 33½E 5100 17	08 Schneider Meadows 35 6S 45E 5400	Umotilla River	19E3 Oerr 14 135 23E 5670 20E1 Marks Croek 25 12S 19E 4540	ROGUE, UMPQUA WATERSHEDS (9)	2009 Strawberry h hos 16s 5600
			1902 Arbuckle Mountain	20E1 Harks Croek 25 128 19E 15\ \(\begin{array}{cccccccccccccccccccccccccccccccccccc	Rogue River	About Lake
C 124 125 NA/	A 1 S H I 1 N 1 G T	19' O N 1 1.	18D6 Lucky Strike 28 3S 32E 5050	19E4 Tamarack 8 155 25E 4800	2304 Althouse 17 L1S TW 1530 2206 Annio Spring 19 31S 6E 6018	20015 *Near Flat Mendow 27 368 198 5900 20011 *Cox Flat 16 378 188 5750
			18015 Pearson Creek 31 2S 33E 3000 18D5 Meacham 24 & 25 1S 35E 4300		22021 Big Red Mountain 31 403 1W 6500	20011 *Cox Flat 16 373 188 5750 7001h *Finley Correlle 11 365 168 6000 7001h Mill Creek 1 348 178 6200
chars or		E ilagia®	18D3 Tollgate 32 4N 38E 5070 18013 Walla Walla Diversion 22 6N 38E 2400	HOOD, MILE CREEKS,	22013 Billie Crook Divide 30 368 5E 5300 22F19 Diamond-Crater Surmit 3h 288 6E 5800	2006 Quarta Mountain 2 38S 16E 5323 20010 *Shorman Valley 15 37S 21E 6600
		aver ()		LOWER DESCHUTES WATERSHEDS (6)	22014 Fiah Lako 3 375 hs 1865 22012 Fourndle Lako 9 368 55 6000	Summoi Lako
3	COLUMBIA RIVER 3	1003.0	Walla Wallo River	Hood River	2303 Grayback Peak 9 108 5W 6000 23Hl Hazel Viow (Cal) 9 18N 1E 2500	2002 Summer Rim 15 33S 16E 7200
PORTLAND		THE WORLD THE	1803 Tollgate 32 4N 38E 5070	21D6 Brooks Meadows 2 28 10E 4300	22017 Hobart Lake 17 408 3E 5010 22026 Howard Prairie 32 38S 4E 4500	
D WASHINGTON MULTE	NOMAH HOOO & AIDZLE	1805		21D1 Oreenpoint Reservoir 28 2N 9E 3400 21D20 Knebal Springs 31 1S 11E 3850	22016 Hyatt Prairie Roservoir 15 39S 3E 1900 22022 Little Red Mountain 25 10S 2W 6500	Silver Lake
DTILLAMOOK CO	Sono 2107 2108 mile	Giorna Rule Male	Willow Creek	21D8 Phlox Point 6 35 9E 5600 21D4 Red Hill 21 15 9E 4400	2306 Cregon Cavos 16 NOS 6W NOOO 2305 Pago Mountain 8 NLS 7W NON5	21F12 Silver Creek 25 & 26 29S 13E 1900 20013 *Sycan Flat 25 31S 11E 5500
TANHILL TO THE PARTY OF THE PAR	SHERMAN OILLIAM MORROW	8067 UNION 1706	1902 Arbuckle Mountain 33 48 298 5400	21D9 Still Creek 25 3S 8½ 3700 21D7 Tilly Jane 15 2S 9E 6000	2205 Park Headquartore 8 313 6E 6h50 2201 Scragg Mountain (Cal) 9 h7N 10H 6200	
	C R M A S 2012	1809 1809 1809		ZID21 Ulrich Ranch Junction 28 18 11E 3350	22010 Seven Lakes No. 1 3 3hS 5E 6800 22011 Seven Lakes No. 2 26 33S 5E 6200	Warner Lake
	210 A-21014 W A 3 (G O).	18011	UPPER JOHN DAY WATERSHEDS (4)	Mile Creeks - Mosies Creek	2202 511ver Burn 30 30S 4E 3720 22020 51ckiyou Summit 17 403 2E 4630	2008 Camas Crosk 5 398 21E 5720 20016 "Crans Hountain 13 408 21E 6020
1 0 7	2019	HOEL HES STORY	Upper John Day River		2209 South Fork Canal 12 33S 38 3500 22018 Wagnor Butto 1 403 1W 6900	20H3 **Olemnal Symmp (Cul) 31 H8H 16E 7000 1901 **Hart Nountain 1 36S 25E 6350
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	228	18E7 18E8 18E5	18E1 Anthony Lake 18 7S 37E 7125 1902 Arbuckle Mountain 33 4S 29E 5400	21D6 Brooks Meadows 2 28 10E 4300 21D20 Knebal Springs 31 18 11E 3850	2201 Whaloback 3 318 28 5140	20010 «Shorman Vallay 15 378 21E 6600
Santion 2	EZ PRIVET ZEES	ITEL RIVET	18012 Battle Mountain Summit 29 3S 31E 4340 19E2 Beech Creek Summit 4 12S 30E 4800	21D21 Ulrich Ranch Junction 28 18 11E 3350	Umpquo Rivoi	Guano take
E POSTER STATE OF THE PROPERTY	20E1 19E2	10E13/1 Burni	18E16 Blue Mountain Spring 21 15S 35E 5900	Lower Deschutes River	22F9 Champion 12 23S 1E 4500 22F18 Diamond Lako 29 27S 6E 5315	1981 Rald Mountain (Nev) 17 USN 21E 6720 1991 *Hart Mountain 1 363 25E 6350
The state of the s	2/E5 2/E6 2/E6 20E2 G R	A IN T 18E14	19E3 Derr 14 13S 23E 5670	21D12 Clear Lake 29 45 9E 3500	22F16 North Umpqua 19 26S 6E 4215	2 300 231 0330
O - E - A	ROT	18622 18416 017E3	18E1 Dixte Springs 28 11s 3he 6650 18E8 Gold Center 21 98 36e 53ho 19E9 Tree Summit 28 16s 29E 5293	21E6 Hogg Pass 24 13S 71E 4755	22F17 Trap Crook 1 278 hE 3800 22Ol Whaleback 3 313 2E 51ho 22F15 Windigo Pass 20 758 6E 5800	HARNEY BASIN WATERSHEDS (12)
lenzio.	RIVET 218 2218 (22181) (221813) (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813) (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813 (221813) (221813 (221813 (221813 (221813 (221813 (221813 (221813) (221813 (221813 (22	19572 18619 18619	18D6 Lucky Striko 28 3S 32E 5050		22F15 Windigo Pass 20 258 6E 5800	HARINET BASIN MATERSHEDS (12)
Mc rette	21F19 21F3) C R O O K	017F2	20E2 Ochoco Meadows 21 13S 20E 5200	LOWER COLUMBIA WATERSHEDS (7)	KLAMATH WATERSHEDS (10)	Sllvlus River - Silver Croak
1 22TO	O E S O H U T E S O O O O O O O O O O O O O O O O O O	AND AND	18E7 Olive Lake	Sondy River	Klomoth River	1877 *Call Moselon
22513 22	7 2252 2158 21515	Maineut ail	19F1 Snow Mountain 1 19S 26E 6300 19E7 Starr Ridge 20 15S 31E 5150 18E9 Tipton 3h 10S 35½E 5100	,		19P3 Enigrant Butto 14 218 27E 5000 18F3 Idlawild Comp 33 208 31E 5200
8 27FIT 22FII 22F	22F13 21F13		10EA 11brou 34 102 3245 2100	21D8 Phlox Point 6 3S 9E 5600 21D9 Still Creek 25 3S 8JE 3700	2206 Annie Spring 19 313 6E 6018 22013 Hillio Creek Oivide 30 369 5E 5300 2105 Huy Mountain 15 % 22 375 11E 5090	19E9 Izoo Sumult 28 163 29E 5293 18F1 Rock Spring 23 183 32E 5100
F 0 / 14 B	22F 3 (F10)	1771			21F11 Chomult 21 273 8E 1,760	19F1 Show Mountain 1 198 26E 6300 19E7 Starr Ridge 20 153 31E 5150
March 182	2759	Mahaur Lole		WILLAMETTE WATERSHEDS (8)	20012 *Crazyman Flat 9 34S 15E 6100	10Fl ₄ Stinking Water 33 213 3hB 4800
Rivar 2	Horney	MALHEUR 18F5	LEGEND 47		20H2 *Growder Flat (Cal) 30 H7N 1LE 5200 22Fl9 Olianend-Crator Summit 3H 283 6K 5800 21Fl8 Olianend Lake Jet. (97) 1 293 7E 4600	Donner Und Blitzon River
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RIGHT 2261 2201	2 Groter L NG 12 20613 Summer 2	(18G1) 16G5 16G5	• Snow Course	21D12 Clear Lake 29 4s 9E 3500 21D16 Lake Harriet 4 6S 7E 2045	22C16 Hyatt Prairio Reservoir 15 39S 3E 4900	1801 Silvien 35 323 324E 6900 1807 ***V" Lake 31 3543 324E 6600
	2167	3 1862	W Y H E E O COPCO Snow Station	21D14 Peavine Ridge 14 & 15 65 7E 3500 21D8 Phlax Point 6 35 9E 5600 21D9 Still Creek 25 35 8#2 3700	22026 Howard Prairie 32 388 4E 4500 22015 Lako of the Woods 11 375 5E 1960	
CU 8 9 4 2269	22ci H L A M A T H 20GIZ	734	1001	21D9 Still Creek 25 3S 8½E 3700 21D17 Timothy Lake 26 5S 8E 3295	2205 Park Headquartera 8 31S 6E 6450 22025 Polican Guard Station 9 36S 6E 4150	Trout and Whitehouse Creeks
G GODUS JACKS ON COOK	20014 20G15	1867 Award	1603		2006 Quartz Mountain 2 383 16E 5320 22010 Seven Lakes No. 1 3 3k3 5E 6800 22011 Seven Lakes No. 2 26 333 5E 6200	18G6 *Oenio Croek II his 3hE 6600 18H1 Disactor Peak (Nov) 8 h7N 3hE 6500
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0 E 23H 0 23G4 water 22G21	LOUE 20H Lake 20H3	H U W 8 O L O T	ISM4 ISM10-ISM2	21E4 Marion Forks 28 115 7E 2730 22E3 Mill City 29 9S 3E 826	2103 Taylor Butte 16 338 11R 5100	* AFHIAL SHOW DEPTH GAGE
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The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

Idaho Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon Agricultural Experiment Station
Oregon State Engineer and Corps of State Watermasters
Oregon State Highway Engineers
Soil Conservation Districts of Oregon

FEDERAL

Department of Agriculture
Cooperative Extension Service
Forest Service
Soil Conservation Service
Department of Commerce
Weather Bureau

Department of the Interior
Bonneville Power Administration
Bureau of Land Management
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
Indian Service
National Park Service

Department of National Defense Corps of Army Engineers

PUBLIC UTILITIES

California-Pacific Utilities Company Pacific Power and Light Company Portland General Electric Company The California Oregon Power Company

MUNICIPALITIES

City of Baker
City of La Grande
City of The Dalles
City of Walla Walla
IRRIGATION DISTRICTS

Associated Ditch Companies Central Oregon Irrigation District Deschutes County Municipal Improvement District East Fork Irrigation District Grants Pass Irrigation District Jordan Valley Irrigation District Lakeview Water Users, Incorporated Medford Irrigation District North Board of Control - Owyhee Project North Unit Irrigation District Ochoco Irrigation District Rogue River Valley Irrigation District South Board of Control - Owyhee Project Talent Irrigation District Vale-Oregon Irrigation District Warmsprings Irrigation District

PRIVATE ORGANIZATIONS
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